

2250, 2450, 2650, 2650N and 2850 Tractors

TECHNICAL MANUAL
2250, 2450, 2650, 2650N
and 2850 Tractors (Repair)
TM4440 (JAN-91)

John Deere Werke Mannheim
European Edition
Printed in Germany

Supplement (Jan-91) for Technical Manual TM4440

(2250 - 2850 Tractors)

Please insert the revised and new pages in the correct sequence in your Technical Manual, discarding the corresponding original pages which have been revised.



SUMMARY OF MOST IMPORTANT SPECIFICATIONS FOR 2250, 2450, 2650, 2650N and 2850 TRACTORS

NOTE: For further specifications, see relevant Technical Manual.

ENGINE

Valve clearance

(engine hot or cold):

Intake valves	0.35 mm (0.014 in.)
Exhaust valves	0.45 mm (0.018 in.)

Minimum engine oil pressure
at 800 rpm and normal operating
temperature

100 kPa
(1 bar; 14 psi)

Compression

2100 kPa
(21 bar; 300 psi)

Maximum difference in pressure
between cylinders

350 kPa
(3.5 bar; 50 psi)

Maximum blow-by at crankcase
vent tube

80 liter/kWh
(2.8 cu.ft./kWh)

Minimum pressure of turbocharger
in intake manifold at
rated engine speed

60 kPa
(0.6 bar; 9 psi)

Rocker arm shaft to cylinder head
Cylinder head to cylinder block
(cap screws dipped in oil)

1st step	85 Nm (65 ft-lb)
2nd step	135 Nm (100 ft-lb)
3rd step	+ 60°

Rocker cover to cylinder head

10 Nm (7 ft-lb)

Connecting rod cap screws

(dipped in oil)

65 to 75 Nm (50 to 55 ft-lb)

Main bearing caps to

cylinder block

120 Nm (85 ft-lb)

Flywheel to crankshaft

160 Nm (120 ft-lb)

Front axle carrier to engine

without increased lifting capacity

230 Nm (170 ft-lb)

with increased lifting capacity

– Cap screws

230 Nm (170 ft-lb)

– TORX screws

250 Nm (185 ft-lb)

Oil pan to front axle carrier

400 Nm (300 ft-lb)

Oil pan to clutch housing

230 Nm (170 ft-lb)

Clutch housing to engine

230 Nm (170 ft-lb)

Side frames to front axle carrier

230 Nm (170 ft-lb)

Side frames to flywheel housing

230 Nm (170 ft-lb)

FUEL INJECTION NOZZLES

Opening pressure of a new or re-
conditioned nozzle with new spring

– Engine without turbocharger	21700 to 22400 kPa (217 to 224 bar; 3150 to 3250 psi)
– Engine with turbocharger	25100 to 25800 kPa (251 to 258 bar; 3650 to 3750 psi)

Minimum opening pressure with
used nozzle

– Engine without turbocharger	20700 kPa (207 bar; 3000 psi)
– Engine with turbocharger	24100 kPa (241 bar; 3500 psi)

Maximum difference in

opening pressure

700 kPa
(7 bar; 100 psi)

Fuel injection nozzle to

cylinder head

30 Nm (23 ft-lb)

BATTERIES

Cold state testing current

– 55 Ah battery	255 amps.
– 66 Ah battery	300 amps.

ENGINE SINGLE-STAGE CLUTCH

Thickness of a new disk

10 mm (0.39 in.)

Wear limit

7 mm (0.26 in.)

Maximum permissible warpage

of clutch disk

0.5 mm (0.02 in.)

Flywheel to crankshaft

160 Nm (120 ft-lb)

Clutch to flywheel

50 Nm (35 ft-lb)

Clutch pedal free play

(mechanical clutch)

25 mm (approx. 1 in.)

ENGINE DUAL-STAGE CLUTCH

Thickness of a new disk

– Engine clutch

9.0 to 9.6 mm
(0.35 to 0.38 in.)

– PTO clutch

7.7 to 8.3 mm
(0.30 to 0.33 in.)

Wear limit of a clutch disk

– Engine clutch

6 mm (0.24 in.)

– PTO clutch

4.7 mm (0.18 in.)

Maximum permissible warpage

of clutch disk

0.5 mm (0.02 in.)

Flywheel to crankshaft

160 Nm (120 ft-lb)

Clutch to flywheel

50 Nm (35 ft-lb)

Clutch pedal free play

25 mm (approx. 1 in.)

HI-LO SHIFT UNIT

Operating pressure at 1500 rpm

1050 kPa
(10.5 bar; 150 psi)

Operating pressure of

automatic shift valve

500 to 700 kPa
(5 to 7 bar; 75 to 100 psi)

Hi-Lo shift unit to

clutch housing

50 Nm (35 ft-lb)



SUMMARY OF MOST IMPORTANT SPECIFICATIONS FOR 2250, 2450, 2650, 2650N and 2850 TRACTORS

SYNCHRONIZED TRANSMISSION

Differential Drive Shaft

Rolling drag torque with

New bearings 0.75 to 1.5 Nm (6.5 to 13 in-lb)

Used bearings 0.4 to 0.75 Nm (3.5 to 6.5 in-lb)

Special hex. nut or special nut

of differential drive shaft 140 Nm (100 ft-lb)

Range Shaft

Preload of taper roller bearings 0.05 to 0.10 mm
(0.002 to 0.004 in.)

Countershaft

Preload of transmission

hollow drive shaft 0.05 to 0.10 mm
(0.002 to 0.004 in.)

Rolling drag torque 1 to 2 Nm (9 to 18 in-lb)

End play of differential

drive shaft 0.03 to 0.13 mm
(0.001 to 0.005 in.)

Hex. nut of transmission

hollow drive shaft 140 Nm (100 ft-lb)

Countershaft bearing quill 120 Nm (85 ft-lb)

Intermediate Shaft

Preload of bearings 0.05 to 0.10 mm
(0.002 to 0.004 in.)

Grooved nut 140 Nm (100 ft-lb)

Clutch housing to

transmission case 160 Nm (120 ft-lb)

COLLAR SHIFT TRANSMISSION

Differential Drive Shaft

Total thickness of shim pack

to adjust cone point 0.5 mm (0.02 in.)

Maximum permissible end play before

adjusting preload 0.05 mm (0.002 in.)

Dimension to be added to

measured end play 0.15 mm (0.006 in.)

Preload of taper roller bearings 0.15 mm (0.006 in.)

Rolling drag torque with

specified preload 0.6 to 1.7 Nm
(5 to 15 in-lb)

Hex. nut of differential

drive shaft 220 Nm (160 ft-lb)

Transmission Drive Shaft

End play 0.10 to 0.15 mm
(0.004 to 0.006 in.)

Transmission drive shaft

bearing quill 50 Nm (35 ft-lb)

TRANSMISSION OIL PUMP

Minimum delivery of transmission
oil pump at 2000 rpm:

Oil temperature 40°C (100°F)

– 2250 and 2450

without Hi-Lo 34 liters/min. (9 gpm)

– 2250 to 2850

with Hi-Lo and

2650 to 2850

without Hi-Lo 42 liters/min. (11 gpm)

Oil temperature 65°C (150°F)

– 2250 and 2450

without Hi-Lo 30 liters/min. (8 gpm)

– 2250 to 2850

with Hi-Lo and

2650 to 2850

without Hi-Lo 38 liters/min. (10 gpm)

Minimum flow to hydraulic pump
at 2000 rpm with:

Oil temperature 40°C (100°F)

– 2250 to 2850

without Hi-Lo 30 liters/min. (8 gpm)

– 2250 to 2850

with Hi-Lo and

2650 to 2850

without Hi-Lo 36 liters/min. (9.5 gpm)

Oil temperature 65°C (150°F)

– 2250 and 2450

without Hi-Lo 26 liters/min. (7 gpm)

– 2250 to 2850

with Hi-Lo and

2650 to 2850

without Hi-Lo 32 liters/min. (8.5 gpm)

Transmission oil pump

cap screws 55 Nm (40 ft-lb)

Transmission oil pump

to clutch housing 55 Nm (40 ft-lb)

DIFFERENTIAL

Preload of taper roller bearings 0.05 to 0.13 mm
(0.002 to 0.005 in.)

Backlash between ring gear and

differential drive shaft pinion 0.30 mm (0.012 in.)

FINAL DRIVES

To measured rolling drag torque

of final drive housing (before

tightening 12-point screw) add:

Standard final drives 8 to 12.5 Nm
(6 to 9 ft-lb)

Heavy-duty final drives 10 to 13.5 Nm
(7.5 to 10 ft-lb)

Final drives to transmission case 120 Nm (85 ft-lb)



SUMMARY OF MOST IMPORTANT SPECIFICATIONS FOR 2250, 2450, 2650, 2650N 2850 TRACTORS

INDEPENDENT PTO

Operating pressure at 1500 rpm	1050 kPa (10.5 bar; 150 psi)
Preload of taper roller bearings in bearing quill (at 540 rpm, heavy-duty type)	0.05 mm (0.002 in.)
Drive gear to clutch drum	75 Nm (55 ft-lb)
Bearing quill to transmission case	120 Nm (85 ft-lb)

CONTINUOUS RUNNING PTO

Preload of taper roller bearings in bearing quill (heavy-duty version)	0 to 0.05 mm (0 to 0.002 in.)
Bearing quill to transmission case	120 Nm (85 ft-lb)

FRONT PTO

Operating pressure at 1500 rpm	1050 kPa (10.5 bar; 150 psi)
Preload of taper roller bearings	0 to 0.05 mm (0 to 0.002 in.)
Front PTO to front axle carrier	400 Nm (300 ft-lb)

FRONT WHEEL DRIVE

Operating pressure at 1500 rpm	1050 kPa (10.5 bar; 150 psi)
Disk clutch slips at a torque of:	
2250, 2450, 2650 and 2650N	880 Nm (650 ft-lb)
2850	1000 Nm (740 ft-lb)
Front axle to front axle carrier	300 Nm (220 ft-lb)
Front axle axial play	0 to 0.5 mm (0 to 0.02 in.)
Universal-jointed drive shaft to drive hub	75 Nm (55 ft-lb)

HYDROSTATIC STEERING

Adjustment pressure of double-acting safety valves	21000 kPa (210 bar; 3050 psi)
Steering valve to steering column	50 Nm (35 ft-lb)

BRAKES

Return travel of pressure ring (within 15 seconds)	0.28 to 0.35 mm (0.011 to 0.014 in.)
Test pressure for leakage test of pressure ring	300 kPa (3 bar; 44 psi)
Maximum pressure drop within 10 seconds	10 kPa (0.1 bar; 1.5 psi)
Retraction pin assembly to pressure ring	15 Nm (11 ft-lb)

HYDRAULIC PUMPS

Pump stand-by pressure	19000 kPa (190 bar; 2760 psi)
Minimum delivery at 2000 rpm and 17000 kPa (170 bar; 2450 psi) operating pressure:	
12 cm ³ (0.7 cu.in.) pump	19 liters/min. (5 gpm)
23 cm ³ (1.4 cu.in.) pump	34 liters/min. (9 gpm)
40 cm ³ (2.4 cu.in.) pump	68 liters/min. (18 gpm)
Hydraulic pump to front axle carrier	120 Nm (85 ft-lb)

ROCKSHAFT

Opening pressure of pressure relief valve (with 100 mm; 3.94 in. diameter piston)	21000 to 23000 kPa (210 to 230 bar; 3050 to 3340 psi)
Opening pressure of thermal relief valve (with 92 mm; 3.67 in. diameter piston)	24200 to 31000 kPa (242 to 310 bar; 3500 to 4500 psi)
Rockshaft to transmission case	120 Nm (85 ft-lb)

Adjusting Load Control Arm

Turn in control arm adjusting screw until it contacts arm and then back off	1/3 to 1/2 a turn
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SUMMARY OF MOST IMPORTANT SPECIFICATIONS FOR 2250, 2450, 2650, 2650N and 2850 TRACTORS

Adjusting Valve Clearance

At commencement of lift, turn
adjusting screw clockwise 1/4 turn
Control lever play between
raising and lowering:

With SG2 cab 12 to 15 mm
(0.5 to 0.6 in.)

With MC1 cab

– Up to Tractor Serial No. 637 600L* 4 to 10 mm
(0.16 to 0.4 in.)

– From Tractor Serial No. 637 601L* 12 to 15 mm
(0.5 to 0.6 in.)

*Without cab** 2 to 4 mm
(0.08 to 0.16 in.)

On narrow tread tractors 3 to 6 mm
(0.12 to 0.24 in.)

Adjusting Rockshaft Control Lever

With SG2 cab

Front edge of rockshaft control
lever in position 7 to 7.5

With MC1 cab (up to Tractor Serial No. 637 600L)

Clearance from front end position to
front edge of rockshaft control lever* 10 + 6 mm
(0.4 + 0.24 in.)

With MC1 cab (from Tractor Serial No. 637 601L)

Front edge of control lever in position 7 to 7.5

Without cab

Front edge of rockshaft control
lever to front end of quadrant* 12 + 1/-2 mm
(0.47 + 0.04/-0.08 in.)

On narrow tread tractors

Front edge of rockshaft control
lever to front edge of quadrant* 15 + 10/-5 mm
(0.6 + 0.4/-0.2 in.)

Adjusting commencement of lift
with load control

With SG2 cab

Front edge of control lever in position 2 to 2.5

With MC1 cab (up to Tractor Serial No. 637 600L)

Clearance from rear end position to
rear edge of rockshaft control lever* 45 + 6 mm
(1.8 + 0.24 in.)

With MC1 cab (from Tractor Serial No. 637 601L)

Front edge of control lever in position 2 to 2.5

Without cab

Rear edge of control lever to
rear end of quadrant* 50 ± 3 mm
(2 ± 0.12 in.)

On narrow tread tractors

Clearance from rear end position
to rear edge of rockshaft control lever* 90 + 10/-5 mm
(3.54 + 0.4/-0.2 in.)

* Measured at upper edge of quadrant

FRONT AXLE

Maximum permissible axial
play of knuckle and spindle

assy. in axle knee 0.76 mm (0.03 in.)

Front axle axial play 0 to 0.4 mm (0 to 0.015 in.)

Bearing pin to front axle carrier 100 Nm (75 ft-lb)

Axle knees to axle center 400 Nm (300 ft-lb)

Steering arm to knuckle
and spindle assy.

– Clamping screw 120 Nm (85 ft-lb)

– Cap screw 230 Nm (170 ft-lb)

FRONT WHEELS

Wheel hub to axle spindle 50 Nm (35 ft-lb)

Steel disk to rim

– M16x120 attaching screws 250 Nm (180 ft-lb)

– M16x74 attaching screws 280 Nm (210 ft-lb)

Wheel rim to hub

Without front wheel drive 150 Nm (110 ft-lb)

With front wheel drive 300 Nm (220 ft-lb)

Front wheel toe-in

Without front wheel drive 3 to 6 mm (1/8 to 1/4 in.)

With front wheel drive 0 to 3 mm (0 to 1/8 in.)

REAR WHEELS

Flanged Rear Axle

Steel disk to rim

– M16x120 attaching screws 250 Nm (185 ft-lb)

– M16x74 attaching screws 280 Nm (210 ft-lb)

– 9/16 in. attaching screws 200 Nm (145 ft-lb)

Cast disk to rim 230 Nm (170 ft-lb)

Rear wheels to rear axle 400 Nm (300 ft-lb)

Rack-and-Pinion Axle

Wheel hub to rim 230 Nm (170 ft-lb)

Pinion sleeve halves to

wheel hub 215 Nm (160 ft-lb)

Sleeve attaching screws to

wheel hub 400 Nm (300 ft-lb)

SG2 CAB

SG2 cab to mounting

brackets or final drives 200 Nm (145 ft-lb)

Studs in final drive housings 35 Nm (25 ft-lb)

MC1 CAB

MC1 cab to mountings 245 Nm (180 ft-lb)

2-POST ROLL-GUARD

Supports to final drives 230 Nm (170 ft-lb)

Supports to crossmember 230 Nm (170 ft-lb)

4-POST ROLL-GUARD

Roll-guard to fender 120 Nm (85 ft-lb)

Fender to final drive 230 Nm (170 ft-lb)

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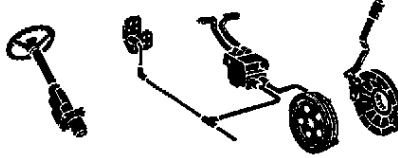
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FX 100006 19 FX100006 19-LB303AE-010490		

SAFETY AND YOU

This is the safety-alert symbol. When you see this symbol on the machine or in this manual, be alert to the potential for personal injury.



T 81389

T81389;053;TMSAFE 19 07OCT85

IMPORTANT

The **IMPORTANT** message identifies potential problems which may cause consequential damage to machine. Following recommended procedure will instruct technician how to avoid problem.

A68;N01;0000 19 U 05NOV82

NOTES

The word **NOTE** is followed by a statement that identifies a qualification or exception to a previous statement. A "**NOTE**" may also identify nice-to-know information pertinent to, but not directly related to previous statement.

A68; N01;0000 18 V 05NOV82

OBSERVE SAFETY RULES

Avoid loose clothing that can catch in moving parts and put you out of work.

Wear your safety glasses while on the job.

Avoid working on equipment with the engine running. If it is necessary to make checks with the engine running, **ALWAYS USE TWO PEOPLE** – with the operator, at the controls, able to see the person doing the checking. Also, put the transmission in neutral, set the brake, and apply safety locks provided. **KEEP HANDS AWAY FROM MOVING PARTS.**

Keep transmission and brake control units properly adjusted at all times. Before making adjustments, stop engine.

Before removing any housing covers, stop engine. Take all objects from your pockets which could fall into the opened housings. Don't let adjusting wrenches fall into opened housings.

Don't attempt to check belt tension while the engine is running.

Don't adjust the fuel system while the machine is in motion.

Before repairing the electrical system, or performing a major overhaul, make sure the batteries are disconnected.

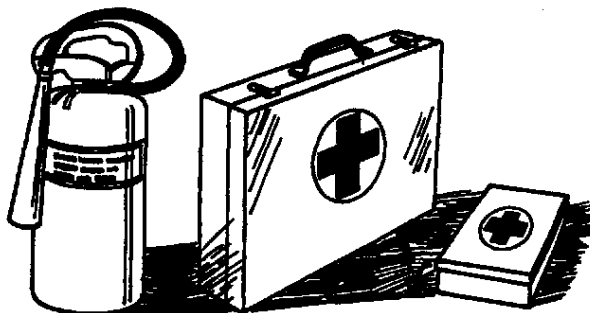
A68; N01;0000 19 S 05NOV82

PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital and fire department near your telephone.



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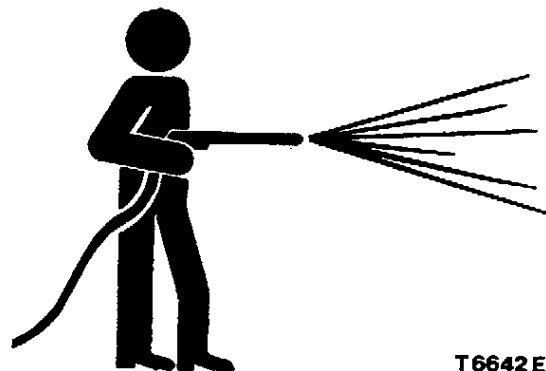
L114052;053;FIR2 19 15MAR89

Safety

WORK IN CLEAN AREA

Before starting a job:

- Clean work area and machine.
- Make sure you have all necessary tools to do your job.
- Have the right parts on hand.
- Read all instructions thoroughly; do not attempt shortcuts.



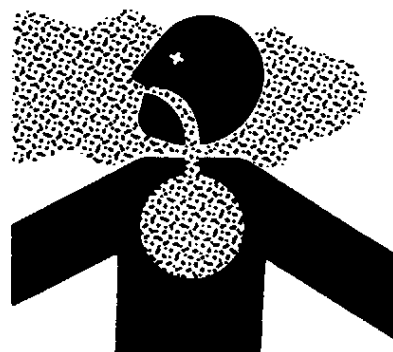
T 6642 E

T6642E;053;CLEAN 19 19JAN88

WORK IN VENTILATED AREA

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.



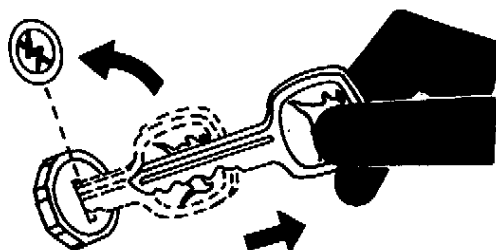
TS 220

TS220;053;AIR 19 05JAN88

PARK MACHINE SAFELY

Before working on the machine:

- Lower all equipment to the ground.
- Stop the engine and remove the key.
- Disconnect the battery ground strap.
- Hang a "DO NOT OPERATE" tag in operator station.



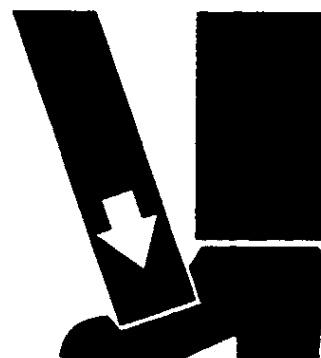
TS 230

TS230;053;PARK 19 05JAN88

USE PROPER LIFTING EQUIPMENT

Lifting heavy components incorrectly can cause severe injury or machine damage.

Follow recommended procedure for removal and installation of components in the manual.



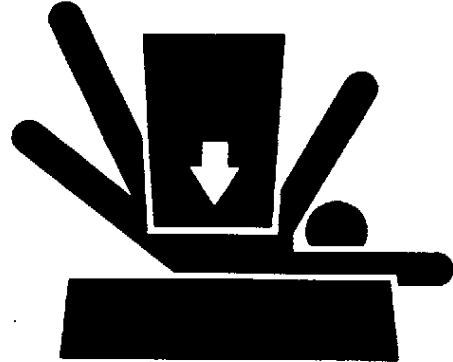
TS 226

TS226;053;LIFT 19 05JAN88

SUPPORT MACHINE PROPERLY

Always lower the attachment or implement to the ground before you work on the machine. If you must work on a lifted machine or attachment, securely support the machine or attachment.

Do not support the machine on cinder blocks, hollow tiles or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.

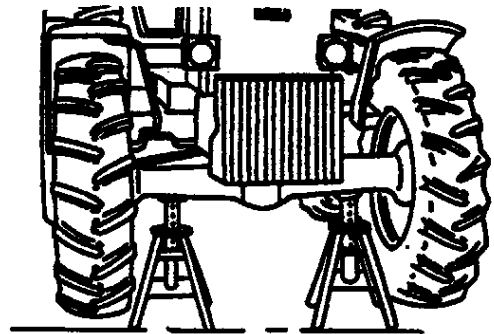


TS 229

TS229:053:LOWER 19 21DEC87

SERVICE FRONT-WHEEL DRIVE TRACTOR SAFELY

When servicing front-wheel drive tractor with the rear wheels supported off the ground and rotating wheels by engine power, always support front wheels in a similar manner. Loss of electrical power or transmission/hydraulic system pressure will engage the front driving wheels, pulling the rear wheels off the support if front wheels are not raised. Under these conditions, front drive wheels can engage even with switch in disengaged position.



L114050

L114050-ESPDAE-140388

SERVICE HYDROSTATIC CREEPER TRANSMISSION SAFELY

Service work on the hydrostatic creeper transmission may be performed with the engine running only if front and rear wheels are raised and the tractor is safely supported.

Loss of electric power or transmission/hydraulic system pressure will engage hydrostatic creeper transmission, even if the toggle switch is in "OFF" position. Tractor could then start to move if wheels are in contact with the ground.



FXB 04001 UN

FXB04001UN, HYDRO1G 070290

PREVENT MACHINE RUNAWAY

Avoid possible injury or death from a machine runaway.

Do not start the engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with the transmission in neutral or "Park".



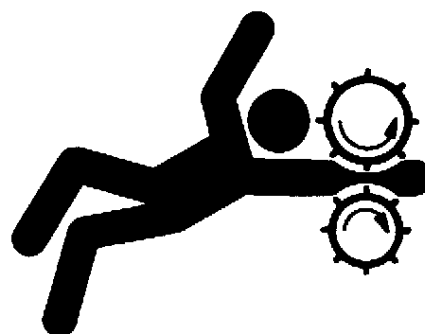
TS177

TS177;053;BYPAS1 19 21MAY85

SERVICE MACHINE SAFELY

Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



TS228

TS228;053;LOOSE 19 21DEC87

UNDERSTAND CORRECT SERVICE

Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.

Catch draining fuel, oil, or other fluids into suitable containers. Do not use food or beverage containers that may mislead someone into drinking from them. Wipe up spills at once.



TS 223

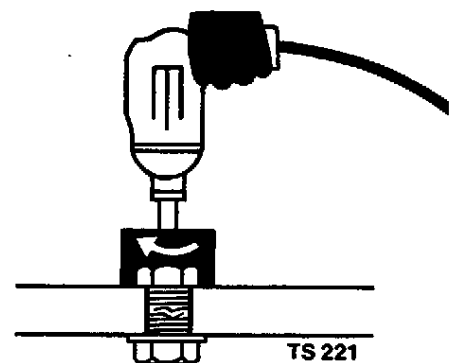
TS223;053;LIGHT 19 23FEB88

USE TOOLS PROPERLY

Use tools appropriate to the work. Makeshift tools, parts, and procedures will not make good repairs.

Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use such tools to tighten fasteners, especially on light alloy parts.

Use only replacement parts meeting John Deere specifications.



TS 221

TS221;053;REPAIR 19 21DEC87

HANDLE FLUIDS SAFELY – AVOID FIRES

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease and debris.

Do not store oily rags; they can ignite and burn spontaneously.



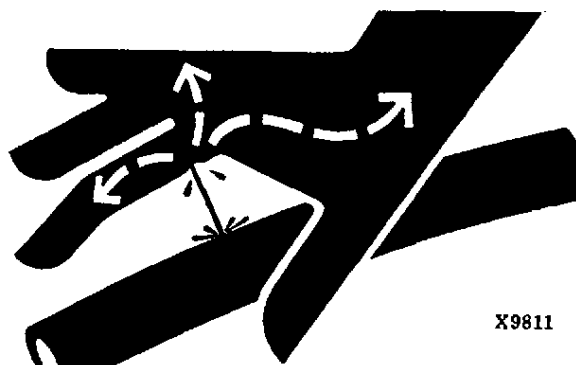
TS 227

TS227;053;FLAME 19 05JAN88

AVOID HIGH-PRESSURE FLUIDS

Escaping fluid (fuel or hydraulic oil) under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard to search for leaks.

If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury, or gangrene may result.



X9811

X9811;053;FLUID 19 18SEP87

REMOVE PAINT BEFORE WELDING OR HEATING

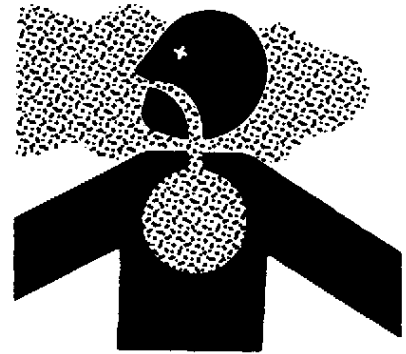
Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

Remove paint before welding or heating:

- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.



TS 220

TS220-ESPD AE-040690

AVOID HEATING NEAR PRESSURIZED FLUID LINES

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized lines or other flammable materials.

Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area. Install fire resisting guards to protect hoses or other materials.



TS 953

TS953-ESPD AE-040690

AVOID HARMFUL ASBESTOS DUST

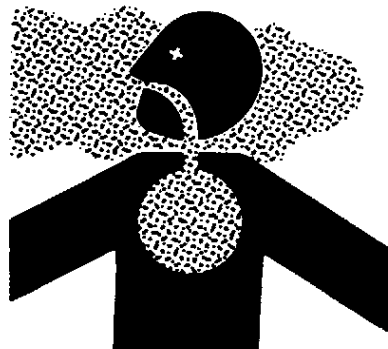
Avoid breathing dust that may be generated when handling components containing asbestos fibers. Inhaled asbestos fibers may cause lung cancer.

Components in John Deere products that may contain asbestos fibers are brake pads, brake band and lining assemblies, clutch plates and some gaskets. The asbestos used in these components is usually found in a resin or sealed in some way. Normal handling is not hazardous as long as airborne dust containing asbestos is not generated.

Avoid creating dust. Never use compressed air for cleaning. Avoid brushing or grinding of asbestos-containing materials. When servicing, wear an approved respirator. A special vacuum cleaner is recommended to clean asbestos. If not available, wet the asbestos-containing materials with a mist of oil or water.

Keep bystanders away from the area.

Please note designations on spare parts.



TS 220



L 114 051

TS220,L114051;053;DUST 19 14APR88

PREVENT ACID BURNS

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing and cause blindness if splashed into eyes.

Avoid the hazard by:

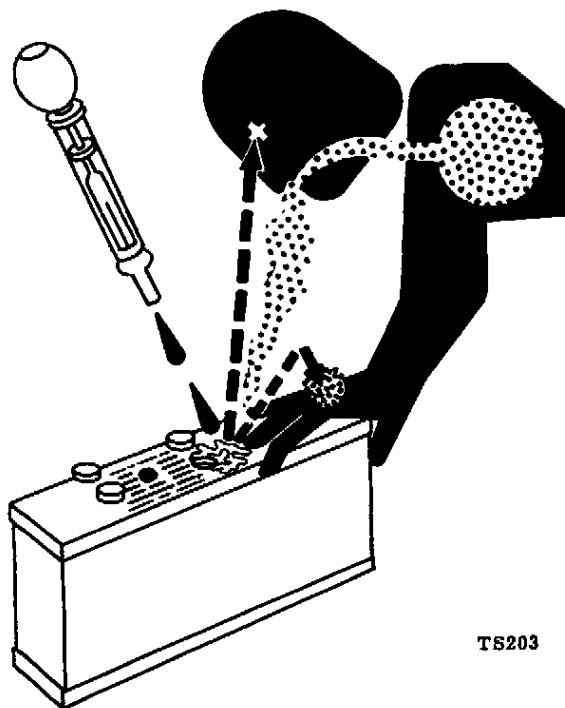
1. Filling the batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

1. Flush your skin with water.
 2. Apply baking soda or lime to help neutralize the acid.
 3. Flush your eyes with water for 10 – 15 minutes.
- Get medical attention immediately.

If acid is swallowed:

1. Drink large amounts of water or milk.
2. Then drink milk of magnesia, beaten eggs or vegetable oil.
3. Get medical attention immediately.



TS203

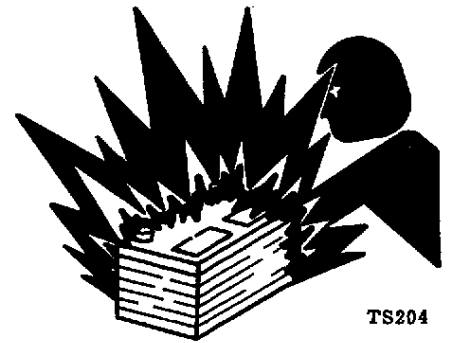
TS203;053;POISON 19 21DEC87

PREVENT BATTERY EXPLOSIONS

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).



TS204

TS204;053;SPARKS 19 28JUN88

SERVICE TIRES SAFELY

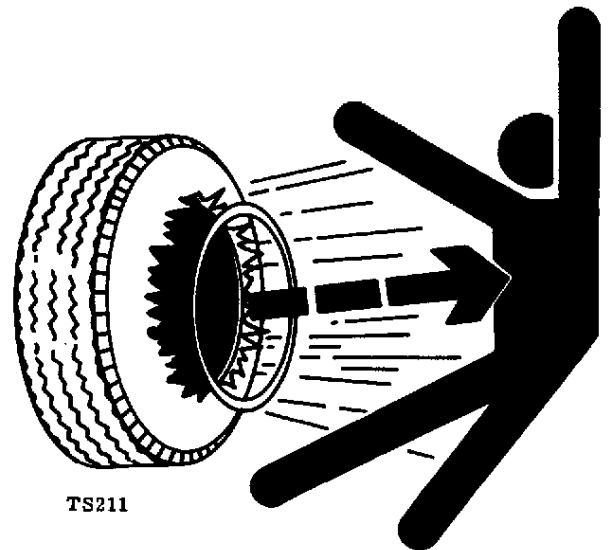
Explosive separation of a tire and rim parts can cause serious injury or death.

Only attempt to mount a tire if you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.



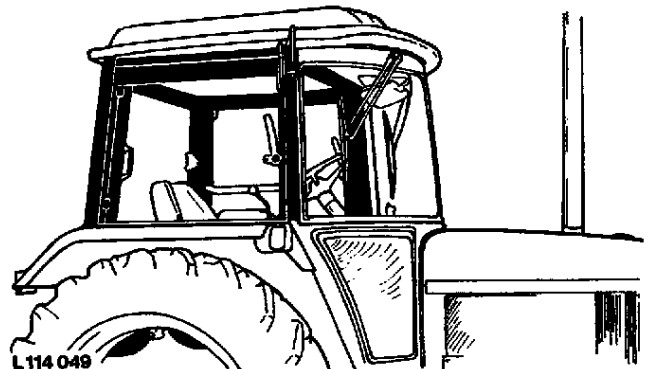
TS211

TS211;053;RIM 19 21DEC87

KEEP CAB/ROPS INSTALLED PROPERLY

Make certain all parts are reinstalled correctly if the cab or roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to specified torque.

Protection offered by cab or ROPS is impaired if subjected to structural damage, is involved in an overturn incident or is altered in any way by welding, bending, drilling or cutting. A damaged cab or ROPS should be replaced, not reused.

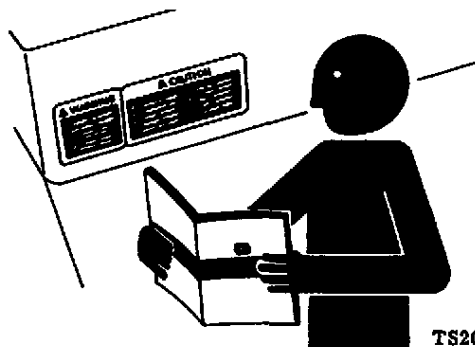


L114 049

L114049;053;ROPS 19 15MAR89

REPLACE SAFETY SIGNS

Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.



TS201

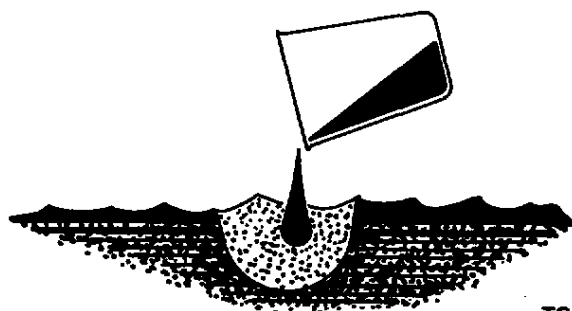
TS201:053:SIGNS1 19 22DEC87

OBSERVE ENVIRONMENTAL PROTECTION REGULATIONS

Be mindful of the environment and ecology.

Before draining any fluids, find out the correct way of disposing of them.

Observe the relevant environmental protection regulations when disposing of oil, fuel, coolant, brake fluid, filters and batteries.



TS 222

TS222-ESPD AE-140388

Section 10 GENERAL

05 - SPECIFICATIONS

		2250	2450	2650	2650 N	2850
Specifications	05-1	x	x	x	x	x
- Serial number plates	05-1	x	x	x	x	x
- Product identification number	05-1	x	x	x	x	x
- Engine serial number	05-1	x	x	x	x	x
- Transmission serial number	05-2	x	x	x	x	x
- Front wheel drive axle serial number	05-3	x	x	x	x	x
- SG2 cab serial number	05-3	x	x	x		x
- MC1 cab serial number	05-3	x	x	x		x
- Model serial numbers	05-3	x	x	x	x	x
- Engine	05-4	x	x	x	x	x
- Engine clutch	05-6	x	x	x	x	x
- Cooling system	05-6	x	x	x	x	x
- Fuel system	05-6	x	x	x	x	x
- Electrical system	05-6	x	x	x	x	x
- Synchronized transmission	05-6	x	x	x	x	x
- Collar shift transmission	05-6	x	x	x		
- Hi-Lo shift unit	05-7	x	x	x	x	x
- Creeper transmission	05-7	x	x	x	x	x
- Hydrostatic creeper transmission	05-7	x	x	x		x
- Differential and final drives	05-7	x	x	x	x	x
- Differential lock	05-7	x	x	x	x	x
- Independent PTO	05-7	x	x	x	x	x
- Continuous-running PTO	05-8	x	x			
- Front PTO	05-8	x	x	x		x
- PTO speeds	05-8	x	x	x	x	x
- Front wheel drive	05-8	x	x	x	x	x
- Hydrostatic steering	05-8	x	x	x	x	x
- Power steering	05-9	x	x	x		x
- Manual steering	05-9	x	x	x		
- Foot brakes	05-9	x	x	x	x	x
- Hand brake	05-9	x	x	x	x	x
- Hydraulic system	05-9	x	x	x	x	x
- Rockshaft	05-9	x	x	x	x	x
- Front hitch	05-9	x	x	x		x
- Ground travel speeds	05-9	x	x	x	x	x
- Front and rear wheels	05-10	x	x	x	x	x
- Dimensions and weights	05-10	x	x	x	x	x
- Capacities	05-10	x	x	x	x	x
- Standard torques for hardware	05-11	x	x	x	x	x

ALLGEM-LB31001AE-010988

2250
2450
2650
2650 N
2850

10 – PREDELIVERY, DELIVERY AND AFTER-SALES INSPECTIONS

Special tools	10-1	x	x	x	x	x
Specifications	10-2	x	x	x	x	x
Capacities	10-3	x	x	x	x	x
Torques for hardware	10-3	x	x	x	x	x
Predelivery inspection	10-5	x	x	x	x	x
Delivery inspection	10-30	x	x	x	x	x
After-sales inspection	10-31	x	x	x	x	x

15 – LUBRICATION AND SERVICE

Capacities and service intervals	15-1	x	x	x	x	x
Lubricants and service intervals	15-2	x	x	x	x	x
General	15-3	x	x	x	x	x
Engine oil	15-3	x	x	x	x	x
Transmission/hydraulic oil	15-4	x	x	x	x	x
Oil for front wheel drive axle	15-4	x	x	x	x	x
EP multi-purpose grease	15-5	x	x	x	x	x
Storing lubricants	15-5	x	x	x	x	x
Brake fluid for hydraulically operated clutch	15-5	x	x	x		x
Engine coolant	15-6	x	x	x	x	x
Checking engine oil level	15-6	x	x	x	x	x
Changing engine oil	15-7	x	x	x	x	x
Changing engine oil filter	15-7	x	x	x	x	x
Checking fuel filter	15-8	x	x	x	x	x
Replacing fuel filter	15-8	x	x	x	x	x
Replacing coolant	15-9	x	x	x	x	x
Checking transmission/hydraulic system oil level	15-10	x	x	x	x	x
Changing transmission/hydraulic oil	15-11	x	x	x	x	x
Replacing transmission/hydraulic oil filter element	15-12	x	x	x	x	x
Replacing hydraulic oil return flow filter	15-12	x	x	x	x	x
Replacing hydrostatic steering filter (tractors without SG2 cab)	15-13	x	x	x	x	x

15 - LUBRICATION AND SERVICE (Contd.)

		2250	2450	2650	2650 N	2850
Cleaning hydraulic pump filter strainer	15-13	x	x	x	x	x
Replacing brake fluid for hydraulically operated clutch	15-13	x	x	x	x	x
Checking axle housing oil level	15-14	x	x	x	x	x
Checking oil level in wheel hub housings	15-14	x	x	x	x	x
Changing front axle oil	15-14	x	x	x	x	x
Cleaning lubricating points	15-15	x	x	x	x	x
Lubricating clutch throw-out bearing (with mechanically operated clutch)	15-15	x	x	x	x	x
Cleaning and repacking front wheel bearings ..	15-15	x	x	x	x	x
Lubricating front axle and front wheels	15-16	x	x	x	x	x
Lubricating universal-jointed drive shaft (tractors with front wheel drive)	15-17	x	x	x	x	x
Lubricating rear axle bearings	15-17	x	x	x	x	x
Lubricating three-point hitch	15-18	x	x	x	x	x
Lubricating front PTO	15-18	x	x	x		x
Lubricating front hitch	15-19	x	x	x		x

ALLGEM-LB31003AE-010888

20 - TUNE-UP

		2250	2450	2650	2650 N	2850
Specifications	20-1	x	x	x	x	x
Preliminary engine testing	20-2	x	x	x	x	x
Checking air cleaner element	20-3	x	x	x	x	x
Checking air intake system connections for leaks	20-3	x	x	x	x	x
Checking crankcase vent tube for clogging	20-3	x	x	x	x	x
Cleaning radiator side panels and grille screens	20-3	x	x	x	x	x
Cleaning radiator and oil cooler	20-4	x	x	x	x	x
Cleaning condenser	20-4	x	x	x		x
Checking radiator cap	20-4	x	x	x	x	x
Checking radiator for leaks	20-5	x	x	x	x	x
Checking thermostat	20-5	x	x	x	x	x
Checking fuel transfer pump	20-5	x	x	x	x	x
Checking fuel filter	20-6	x	x	x	x	x
Checking fuel tank	20-6	x	x	x	x	x
Checking auxiliary fuel tank	20-6	x	x	x		x
Checking water trap	20-7	x	x	x	x	x
Checking fuel injection pump adjustment	20-7	x	x	x	x	x
Checking engine slow and fast idle speeds	20-7	x	x	x	x	x
Checking speed control linkage adjustment	20-8	x	x	x	x	x
Checking batteries	20-8	x	x	x	x	x
Checking fan belt tension	20-8	x	x	x	x	x
Checking compressor V-belt tension	20-9	x	x	x		x
Checking operation of start safety switch	20-9	x	x	x	x	x
Checking operation of starting motor	20-9	x	x	x	x	x
Checking lighting system	20-10	x	x	x	x	x
Final engine check	20-10	x	x	x	x	x
Checking tractor operation	20-10	x	x	x	x	x

25 – TRACTOR SEPARATION

		2250	2450	2650	2650 N	2850
Special tools	25-1	x	x	x	x	x
Specifications	25-6	x	x	x	x	x
Torques for hardware	25-6	x	x	x	x	x
Capacities	25-9	x	x	x	x	x
Standard torques for hardware	25-10	x	x	x	x	x
Important notes	25-13	x	x	x	x	x
Removing tractor front end	25-14	x	x	x	x	x
Installing tractor front end	25-22	x	x	x	x	x
Separating between engine and clutch housing	25-26	x	x	x	x	x
Joining tractor between engine and clutch housing	25-39	x	x	x	x	x
Removing engine	25-42	x	x	x	x	x
Installing engine	25-43	x	x	x	x	x
Removing clutch housing	25-44	x	x	x	x	x
Installing clutch housing	25-47	x	x	x	x	x
Removing transmission	25-48	x	x	x	x	x
Installing transmission	25-60	x	x	x	x	x
Removing final drives	25-64	x	x	x	x	x
Installing final drives	25-77	x	x	x	x	x
Removing rockshaft	25-83	x	x	x	x	x
Installing rockshaft	25-88	x	x	x	x	x
Removing front axle	25-90	x	x	x	x	x
Installing front axle	25-92	x	x	x	x	x
Removing front wheel drive axle	25-94	x	x	x	x	x
Installing front wheel drive axle	25-96	x	x	x	x	x
Removing SG2 cab	25-99	x	x	x		x
Installing SG2 cab	25-110	x	x	x		x
Removing MC1 cab	25-113	x	x	x		x
Installing MC1 cab	25-123	x	x	x		x
Removing front hitch	25-125	x	x	x		x
Installing front hitch	25-128	x	x	x		x
Removing front PTO	25-130	x	x	x		x
Installing front PTO	25-132	x	x	x		x

SPECIFICATIONS

SERIAL NUMBER PLATES

The following illustrations show the serial number plates for tractor major components. The letters and figures on these plates are required for warranty claims and when ordering replacement parts.

TECHDA-LA71005AE-180385

PRODUCT IDENTIFICATION NUMBER PLATE

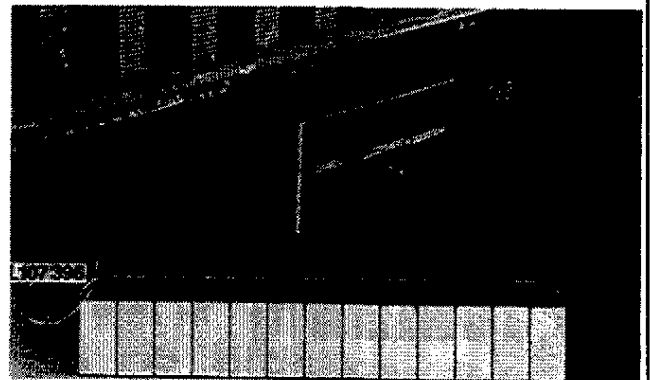
Tractors Without Front Hitch

The product identification number plate is located on right-hand side of front axle carrier.
The chassis number is stamped in front axle carrier next to the identification number plate.

Tractors With Front Hitch

The product identification number plate is located on front side of right-hand battery box.
The chassis number is stamped in front axle carrier under the right-hand radiator guard plate.

NOTE: When ordering tractor parts (excluding engine parts), quote all letters and figures of serial number stamped on this plate.

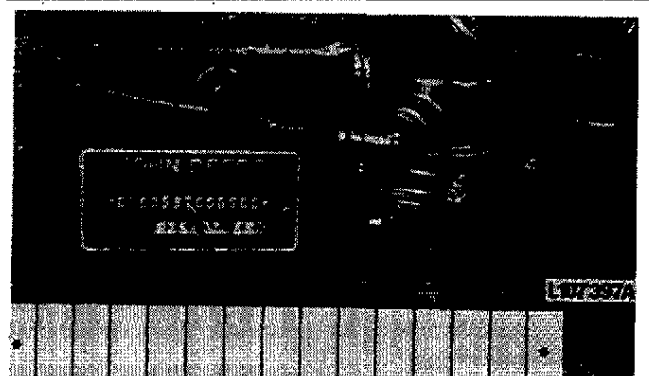


L107398, L115006-LB21005AE-010886

ENGINE SERIAL NUMBER PLATE

The engine serial number plate is located on right-hand side of engine block.

NOTE: The engine serial number plate shows the engine type as well as the engine serial number. When ordering engine parts, quote all figures stamped on this plate.



L107397A-LB41005AE-010887

TRANSMISSION SERIAL NUMBER PLATE (Tractors Without Cab)

The transmission serial number plate is located on right-hand side of transmission case.

From tractor Serial No. 617 678L, an additional serial number plate is attached to left-hand side of dash.

NOTE: In addition to serial number of transmission and transmission type, this serial number plate also specifies differential and front wheel drive gear ratios.

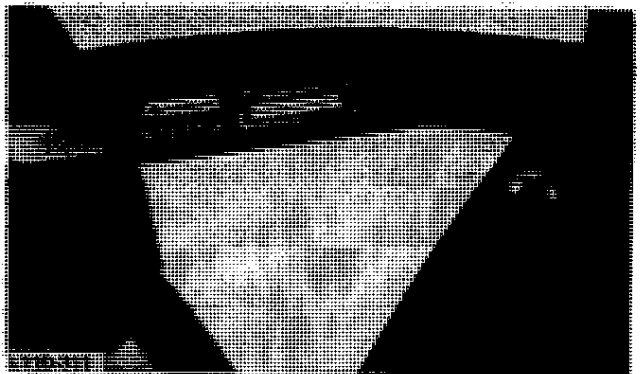


L112618-L119364-LB31005AE-010888

TRANSMISSION SERIAL NUMBER PLATE (Tractors With SG2 Cab)

The transmission serial number plate is located on right-hand side of cab crossmember and on right-hand side of transmission case.

NOTE: In addition to serial number of transmission and transmission type, this serial number plate also specifies differential and front wheel drive gear ratios.

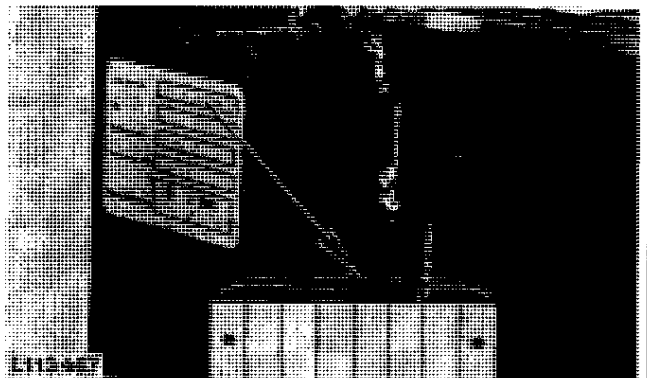


L110311-LB21005AE-010686

TRANSMISSION SERIAL NUMBER PLATE (Tractors With MC1 Cab)

The transmission serial number plate is located on right-hand side of cowl and on right-hand side of transmission case.

NOTE: In addition to serial number of transmission and transmission type, this serial number plate also specifies differential and front wheel drive gear ratios.

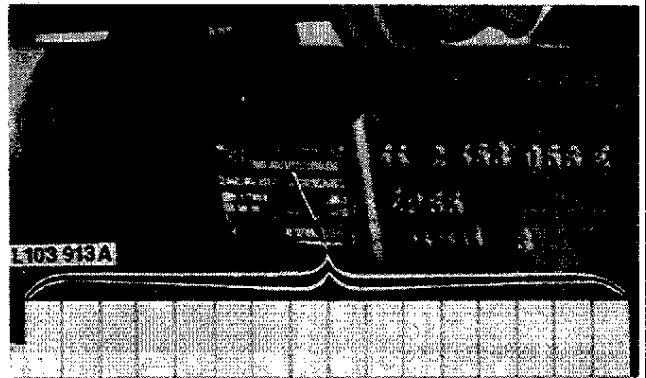


L113467-LB31005AE-010287

Specifications

FRONT WHEEL DRIVE AXLE SERIAL NUMBER PLATE

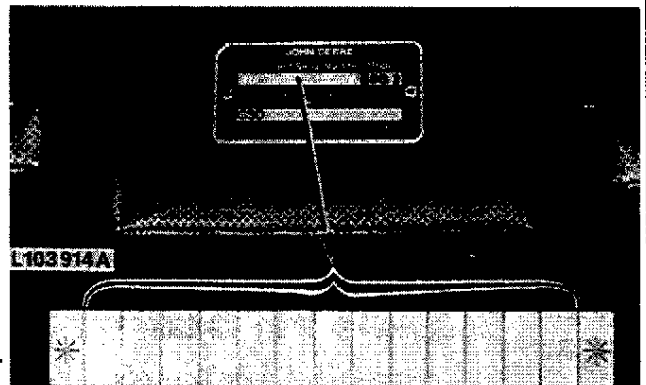
The front wheel drive axle serial number plate is located on rear of right-hand axle half.



L103913A-LA71005AE-180385

SG2 CAB SERIAL NUMBER PLATE

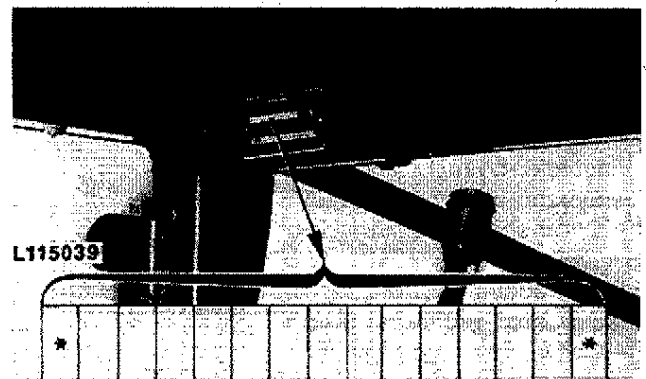
With cab door open, cab serial number plate is visible in roof recess as you enter the cab.



L103914A-LB21005AE-010866

MC1 CAB SERIAL NUMBER PLATE

The serial number plate is located on right-hand side of frame above the rear window.



L115039-LB31005AE-010287

MODEL SERIAL NUMBERS

Fuel injection pump, fuel injection nozzles, alternator, starting motor, hydrostatic steering valve, air conditioning system compressor (when equipped) and hydraulic pump have serial numbers to facilitate identification of different makes of a given unit.

TECHDA-LA71005BE-180385

Specifications

ENGINE

Number of cylinders	4
Bore	106.5 mm (4.19 in.)
Stroke	110 mm (4.33 in.)
Displacement	3920 cm ³ (239 cu.in.)
Compression ratio	17.8 : 1
Max. torque	
With synchronized transmission:	
– 2250 at 1500 rpm	230 Nm (170 ft-lb)
– 2450 at 1400 rpm	255 Nm (188 ft-lb)
– 2650 and 2650N at 1500 rpm	285 Nm (210 ft-lb)
– 2850 at 1500 rpm	315 Nm (232 ft-lb)
With collar shift transmission:	
– 2250 at 1300 rpm	210 Nm (155 ft-lb)
– 2450 at 1300 rpm	230 Nm (170 ft-lb)
– 2650 at 1400 rpm	248 Nm (183 ft-lb)
Firing order	1–3–4–2
Valve clearance (engine hot or cold):	
– Intake valve	0.35 mm (0.014 in.)
– Exhaust valve	0.45 mm (0.018 in.)
Slow idle speed	750 to 850 rpm
Fast idle speed:	
– Synchronized transmission	2410 to 2510 rpm
– Collar shift transmission	2610 to 2660 rpm
Rated engine speed:	
– Synchronized transmission	2300 rpm
– Collar shift transmission	2500 rpm
Working speed range	
Synchronized transmission:	
– 2250, 2650, 2650N and 2850	1500 to 2300 rpm
– 2450	1400 to 2300 rpm
Collar shift transmission:	
– 2250 and 2450	1300 to 2500 rpm
– 2650	1400 to 2500 rpm

TECHDA-LB31005AE-010888

Specifications

Engine speed for PTO operation

Synchronized transmission:

- 540 rpm PTO	
- 2250 to 2850	2070 rpm
- 2650N	1836 rpm
- 1000 rpm PTO	2172 rpm

Collar shift transmission:

- 540 rpm PTO	2034 rpm
- 1000 rpm PTO	2407 rpm

Flywheel horsepower at engine rated speed:

- According to DIN 70 020

	Tractors with: Synchronized transmission	Collar shift transmission
- 2250	46 kW (62 PS)	46 kW (62 PS)
- 2450	51 kW (70 PS)	51 kW (70 PS)
- 2650	57 kW (78 PS)	55 kW (75 PS)
- 2650N	57 kW (78 PS)	
- 2850	63 kW (86 PS)	

PTO* horsepower at engine rated speed:

- According to DIN 70 020

	Tractors with: Synchronized transmission	Collar shift transmission
- 2250	41 kW (56 PS)	41 kW (56 PS)
- 2450	46 kW (63 PS)	46 kW (63 PS)
- 2650	52 kW (71 PS)	50 kW (68 PS)
- 2650N	52 kW (71 PS)	
- 2850	57 kW (78 PS)	

- According to SAE J 1349

	Tractors with: Synchronized transmission	Collar shift transmission
- 2250	39 kW (53 hp)	39 kW (53 hp)
- 2450	43 kW (59 hp)	43 kW (59 hp)
- 2650	48 kW (65 hp)	48 kW (65 hp)
- 2650N	48 kW (65 hp)	
- 2850	55 kW (75 hp)	

Lubrication system Full internal force feed system with full flow filter

* With engine run in (above 100 hours of operation)
and at operating temperature (engine and trans-
mission), measured by means of a dynamometer.
Permissible variation $\pm 5\%$

TECHDA-LB310058E-010888

Specifications

ENGINE CLUTCH

- Type Single dry disk clutch with torsion damper or dual dry disk clutch, foot-operated

COOLING SYSTEM

- Type Pressurized system with centrifugal pump
- Temperature regulation Thermostat and when equipped, viscous fan drive

FUEL SYSTEM

- Type Direct injection
- Fuel injection pump timing to engine TDC
- Fuel injection pump type Distributor type with four pistons
- Air cleaner Dry-type air cleaner with secondary (safety) element

ELECTRICAL SYSTEM

- Batteries 2 x 12 volts, 55 Ah or 66 Ah
- Alternator with external regulator 14 volts, 55 or 85 amps.
- Starting motor 12 volts, 2.7 kW (3.7 hp)
- Battery terminal grounded negative

SYNCHRONIZED TRANSMISSION

- Type Synchronized transmission
- Gear selections 8 forward and 4 reverse
- Gear shifting Two forward ranges and one reverse range; Synchronized forward and reverse shifting within range

COLLAR-SHIFT TRANSMISSION

- Type Helical gears
- Gear selections 8 forward and 4 reverse
- Gear shifting Two forward ranges and one reverse range

TECHDA-LB31005CE-000287

Specifications

HI-LO SHIFT UNIT

- Type Hydraulic gear reduction unit which can be shifted under load with "wet" multiple disk clutch and "wet" disk brake.
- Travel speed decreases in each gear by approx. 20 %
- Shifting the normal speeds hydraulic
- Shifting the reduced speeds preloaded Belleville springs

CREEPER TRANSMISSION

- Type Synchronized reduction gear
- Ground travel speed decrease in the first and reverse ranges by approx. 79%
- Shifting Mechanically, not under load

HYDROSTATIC CREEPER TRANSMISSION

- Type Variable speed hydraulic motor
- Control Electric/hydraulic switching valve and proportional flow control valve

DIFFERENTIAL AND FINAL DRIVES

- Type of differential Spiral bevel gears
- Type of final drive Planetary reduction gear

DIFFERENTIAL LOCK

- Engaged Via lever or foot pedal
- Disengaged Automatically as soon as traction has equalized

INDEPENDENT PTO

- Type Independent of transmission, can be engaged and disengaged under load
- PTO speeds at engine speed of:
- With synchronized transmission:
- 2070 rpm (2250 and 2850) 540 rpm
- 1836 rpm (2650N) 540 rpm
- 2172 rpm (2250 to 2850 and 2650N) 1000 rpm
- With collar shift transmission:
- 2034 rpm 540 rpm
- 2407 rpm 1000 rpm
- interchangeable or hand shift
- PTO clutch Hydraulically operated "wet" disk clutch
- PTO brake Hydraulically operated "wet" disk brake

TECHDA-LB31005CE-010688

Specifications

CONTINUOUS-RUNNING PTO

- Type Independent of transmission, uses dual-stage engine clutch

FRONT PTO

- Type Independent of transmission, can be engaged and disengaged under load
- Control Electric/hydraulic solenoid switch
- PTO speed at an engine speed of:
2172 rpm (counterclockwise) and
2154 rpm (clockwise) 1000 rpm
- PTO clutch Hydraulically operated "wet" disk clutch
- PTO brake Hydraulically operated "wet" disk brake

PTO SPEEDS

At engine speed	540 rpm shaft	1000 rpm shaft
With synchronized transmission:		
2250 to 2850		
- 800 rpm	208 rpm	368 rpm
- 2070 rpm	540 rpm	954 rpm
- 2172 rpm	566 rpm	1000 rpm
- 2300 rpm	600 rpm	1059 rpm
- 2400 rpm	626 rpm	1106 rpm
2650N		
- 800 rpm	235 rpm	368 rpm
- 1836 rpm	540 rpm	846 rpm
- 2172 rpm	638 rpm	1000 rpm
- 2300 rpm	676 rpm	1059 rpm
- 2400 rpm	706 rpm	1106 rpm
With collar shift transmission:		
- 800 rpm	212 rpm	332 rpm
- 2034 rpm	540 rpm	845 rpm
- 2407 rpm	639 rpm	1000 rpm
- 2500 rpm	664 rpm	1038 rpm
- 2600 rpm	690 rpm	1080 rpm

FRONT WHEEL DRIVE

- Type Engaged hydraulically under load with "wet" disk clutch
- Control Electric/hydraulic solenoid switch
- Drive engagement preloaded Belleville springs
- Drive disengagement hydraulic

TECHDA-LB31005DE-010888

Specifications

HYDROSTATIC STEERING

- Type Without mechanical linkage between steering valve and front wheels

POWER STEERING

- Type Hydraulically operated steering linkage

MANUAL STEERING

- Type Recirculating ball bearing, worm and nut design

FOOT BRAKES

- Rear wheel brakes Self-adjusting, hydraulically operated "wet" disk brakes
- Four-wheel brake (universal-jointed drive shaft brake) Self-adjusting, hydraulically operated disk brake
- Four-wheel brake (electrically controlled) Automatic engagement of front wheel drive

HANDBRAKE

- Type Mechanically operated band-type locking brake acting on the differential

HYDRAULIC SYSTEM

- Type Closed-center, constant pressure system
- Stand-by pressure 19000 kPa (190 bar; 2760 psi)
- Operating pressure 17000 kPa (170 bar; 2470 psi)
- Hydraulic pump 4 or 8-piston pump with variable displacement

ROCKSHAFT

- Type With three-point hitch
- Regulation Load control, depth control, load-and-depth control, float position
- Control Via draft links

- FRONT HITCH Controlled by selective control valve

- GROUND TRAVEL SPEEDS see Operator's Manual

TECHDA-LB31005EE-010888

Specifications

FRONT AND REAR WHEELS

- Tires, tread widths, tire pressures
and ballast weights see "Operator's Manual"

- DIMENSIONS AND WEIGHTS** see "Operator's Manual"

CAPACITIES

- Fuel tank 84.0 liters (22.2 U.S. gal.)
- Auxiliary tank 52.0 liters (13.7 U.S. gal.)

Cooling system:

- Without cab or with MC1 cab (without heater) 13.0 liters (3.4 U.S. gal.)
- With SG2 or MC1 cab (with heater) 15.0 liters (4.0 U.S. gal.)

Engine crankcase:

- Initial filling 10.5 liters (2.8 U.S. gal.)
- Oil change with filter replacement 10.0 liters (2.6 U.S. gal.)

Transmission/hydraulic system (including oil reservoir and oil cooler):

- Initial filling (synchronized transmission):
 - Without front wheel drive 50.0 liters (13.2 U.S. gal.)
 - With front wheel drive 53.0 liters (14.0 U.S. gal.)
 - With front PTO 55.0 liters (14.5 U.S. gal.)
 - With hydrostatic creeper transmission,
an additional 2.0 liters (0.53 U.S. gal.)

- Oil change with filter replacement:

- Without front wheel drive 47.5 liters (12.5 U.S. gal.)
- With front wheel drive 50.5 liters (13.3 U.S. gal.)
- With front PTO 52.5 liters (13.9 U.S. gal.)
- With hydrostatic creeper transmission,
an additional 2.0 liters (0.53 U.S. gal.)

- Initial filling (collar shift transmission):

- 2250 and 2450 41.0 liters (10.8 U.S. gal.)
- 2650 46.0 liters (12.2 U.S. gal.)

- Oil change with filter replacement:

- 2250 and 2450 33.0 liters (8.7 U.S. gal.)
- 2650 38.0 liters (10.0 U.S. gal.)
- With heavy-duty final drives, an additional 5.0 liters (1.3 U.S. gal.)

Front Wheel Drive

- Front axle housing:

- 2250 to 2850 5.3 liters (1.4 U.S. gal.)
- 2650N 3.25 liters (0.86 U.S. gal.)
- Wheel hub housing, each 0.75 liters (0.2 U.S. gal.)

- Hydraulically operated clutch system 250 cm³ (8.75 fl.oz.)

- Air conditioning system 1.8 kg (4 lb)

TECHDA-LB31005FE-010888

Specifications

STANDARD TORQUES FOR HARDWARE

**Recommended torques in Nm and ft-lb
for hose and pipeline connections**

A	B		C	
	Nm	ft-lb	Nm	ft-lb
3/8-24 UNF	7,5	5,5	8	6
7/16-20 UNF	10	7	12	9
1/2-20 UNF	12	9	15	11
9/16-18 UNF	15	11	25	18
3/4-16 UNF	25	20	45	35
7/8-14 UNF	40	30	60	45
1-1/16-12 UNC	60	45	100	75
1-3/16-12 UNC	70	50	120	90
1-5/16-12 UNC	80	60	140	105
1-5/8-12 UNC	110	80	190	140
1-7/8-12 UNC	150	110	220	160

L 110 192

A-Thread size

B-With O-rings

C-With cone

L110192-LB21005AE-010886

Specifications

Recommended torques in Nm and ft-lb for UNC and UNF cap screws

A	10.9 C		12.9 D	
	B		B	
	Nm	ft-lb	Nm	ft-lb
1/4	15	10	20	15
5/16	30	20	40	30
3/8	50	35	70	50
7/16	80	55	110	80
1/2	120	85	170	120
9/16	180	130	240	175
5/8	230	170	320	240
3/4	400	300	580	425
7/8	600	445	930	685
1	910	670	1400	1030
1-1/8	1240	910	1980	1460
1-1/4	1700	1250	2800	2060

L 110 193

A—Head marking
(identifying strength)
B—Thread O.D. (in.)

C—Tempered steel high strength
bolts and cap screws
D—Tempered steel extra high
strength bolts and cap screws

NOTE: A variation of $\pm 10\%$ is permissible for all
torques indicated in this chart.

Torque figures indicated above and in the specification sections of this manual are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

L110193-LB21005AE-010886

Specifications

Recommended torques in Nm and ft-lb for metric cap screws

A	8.8 C		10.9 D		12.9 E	
	Nm	ft-lb	Nm	ft-lb	Nm	ft-lb
M5	7	5	9	6,5	10	8,5
M 6	10	8,5	15	10	20	15
M 8	30	20	40	30	40	30
M 10	50	35	80	60	90	70
M 12	100	75	140	100	160	120
M 14	160	120	210	155	260	190
M 16	240	175	350	260	400	300
M 20	480	355	650	480	780	575
M 24	820	605	1150	850	1350	995
M 30	1640	1210	2250	1660	2700	1990
M 36	2850	2110	4000	2950	4700	3465

L 110 194

A—Head marking
(identifying strength)

B—Thread O.D. (mm)

C—Standard bolts and cap screws

D—Tempered steel high strength
bolts and cap screws

E—Tempered steel extra high
strength bolts and cap screws

NOTE: A variation of $\pm 10\%$ is permissible for all torques indicated in this chart.

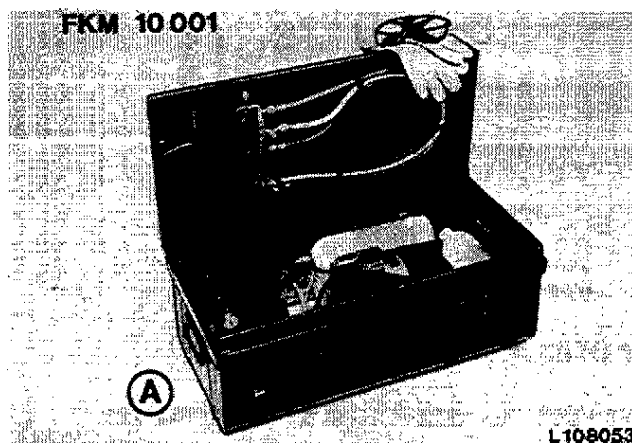
Torque figures indicated above and in the specification sections of this manual are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

L110194-LB21005AE-010886

Group 10

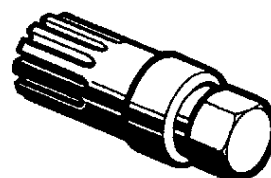
PREDELIVERY, DELIVERY AND AFTER-SALES INSPECTIONS

SPECIAL TOOLS



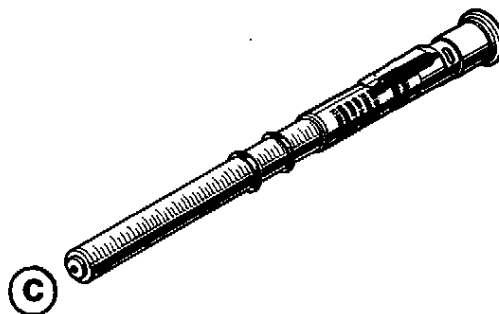
A-Checking refrigerant lines for leaks
B-Turning engine for checking valve clearance
C-Checking tension of V-belts

JDE-83



(B)

JDST-28



(C)

L115068

L108053, L115068-LB31010AE-010888

SPECIFICATIONS

ENGINE SPEEDS

- Slow idle speed	750 to 850 rpm
- Fast idle speed:	
- With synchronized transmission	2410 to 2510 rpm
- With collar shift transmission	2610 to 2660 rpm
- Rated engine speed:	
- With synchronized transmission	2300 rpm
- With collar shift transmission	2500 rpm

FAN BELT

Fan belt should have 19 mm (3/4 in.) flex with 90 N (20 lb) pull midway between crankshaft and alternator or water pump (use a spring scale).

COMPRESSOR BELT

Compressor belt should have 19 mm (3/4 in.) flex with 60 N (13 lb) pull midway between both pulleys.

BATTERIES

Specific gravity at an acid temperature of 20° C (68° F):

- Normal and arctic conditions	1.28
- Tropical conditions	1.23

CLUTCH OPERATING LINKAGE

- Clutch pedal free travel (with mechanically operated clutch)	25 mm (1 in.)
--	---------------

FRONT WHEEL TOE-IN

- Tractors without front wheel drive	3 to 6 mm (1/8 to 1/4 in.)
- Tractors with front wheel drive	0 to 3 mm (0 to 1/8 in.)

BRAKES

- To check brake setting, load each brake pedal for 1 minute with	270 N (60 lb)
- Lowering of a brake pedal within 1 minute at a load of 270 N (60 lb) max	approx. 25 mm (1 in.)
- Handbrake lever setting (in third or fourth notch)	110 N (25 lb)

INSPEK-LB31010AE-010888

CAPACITIES

Engine crankcase:	
- With filter change	10.0 liters (2.6 U.S. gal.)
Front Wheel Drive	
Front axle housing:	
- 2250 to 2850	5.3 liters (1.4 U.S. gal.)
- 2650N	3.25 liters (0.86 U.S. gal.)
- Wheel hub housings, each	0.75 liters (0.2 U.S. gal.)

INSPEK-LB31010BE-010888

TORQUES FOR HARDWARE

Steel disk to front wheel hub:	
- Without front wheel drive	150 Nm (110 ft-lb)
- With front wheel drive	300 Nm (220 ft-lb)
Steel disk to front wheel rim:	
- M16 x 120 attaching bolts	250 Nm (185 ft-lb)
- M16 x 74 attaching bolts	280 Nm (210 ft-lb)
On tractors with flanged rear axle:	
- Rear wheels to rear axle	400 Nm (300 ft-lb)
- Steel disk to rear wheel rim:	
- M16 x 120 attaching bolts	250 Nm (185 ft-lb)
- M16 x 74 attaching bolts	280 Nm (210 ft-lb)
- 9/16 in. attaching bolts	200 Nm (145 ft-lb)
- Cast disk to rear wheel rim	230 Nm (170 ft-lb)
On tractors with rack-and-pinion axle:	
- Rear wheel rim to wheel hub	230 Nm (170 ft-lb)
- Pinion sleeve half to wheel hub	215 Nm (160 ft-lb)
- Key sleeve half to wheel hub	400 Nm (300 ft-lb)
Axle knees to front axle center section	400 Nm (300 ft-lb)
Tie rod clamps:	
- M10 cap screw	55 Nm (40 ft-lb)
- M12 cap screw	90 Nm (65 ft-lb)
Tie rod tube, cap screw	55 Nm (40 ft-lb)

INSPEK-LB31010CE-010888

TORQUES FOR HARDWARE (Contd.)

SG2 cab to rubber mounting blocks, cap screws and hex. nuts	200 Nm (145 ft-lb)
MC1 cab to rubber mounting blocks, cap screws and hex. nuts	245 Nm (180 ft-lb)
4-post roll guard to fenders, cap screws	120 Nm (85 ft-lb)
2-post roll guard:	
– Support to final drives, cap screws	230 Nm (170 ft-lb)
– Crossmember to support, cap screws	230 Nm (170 ft-lb)
"Axla" pickup trailer hitch	
Earlier type:	
– Cap screws (front of transmission case)	120 Nm (85 ft-lb)
– Cap screws (center of transmission case)	160 Nm (120 ft-lb)
– Hex. nuts	135 Nm (100 ft-lb)
Later type:	
Console cap screws:	
– Transmission case, front	135 Nm (100 ft-lb)
– Transmission case, rear	120 Nm (85 ft-lb)
Trailer hitch attaching screws:	
– Cap screws 1/2 x 1-1/4 in.	120 Nm (85 ft-lb)
– Hex. socket screws	160 Nm (120 ft-lb)
Height-adjustable trailer hitch:	
– Guide rails, hex. nuts	500 Nm (300 ft-lb)

INSPEK-LB31010DE-010888

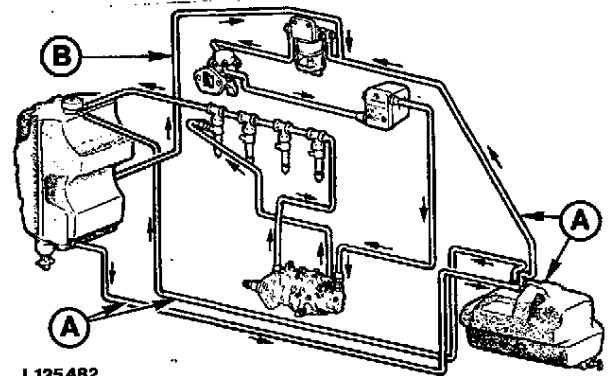
PREDELIVERY INSPECTION

NOTE: Should a malfunction occur when carrying out the predelivery inspection, refer to the relevant T.M. "Engines" or "Operation and Tests".

INSPEK-LB21010JE-000488

CHECKING FUEL LINES FOR LEAKS

A-Tractors with auxiliary fuel tank
B-Tractors without auxiliary fuel tank



L125482-LB31010AE-010888

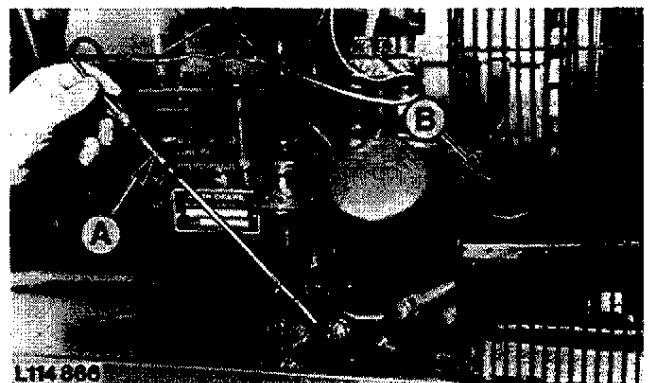
EXAMINING ENGINE FOR LEAKS

INSPEK-LB21010EE-010886

CHECKING OIL LEVEL IN ENGINE CRANKCASE

If necessary, add oil to bring oil level to top mark on dipstick. Use JOHN DEERE Torq-Gard Supreme engine oil SAE 10W-20 or an equivalent oil (see Group 15).

A-Oil dipstick
B-Oil filler neck



L114866-LB21010AE-010886

CHECKING COOLANT LEVEL

Tractors Without Expansion Tank

Coolant must reach up to marker plate in radiator.

On All Tractors

The cooling system is filled with JOHN DEERE engine coolant at the factory. It protects the engine against corrosion and against frost down to -36°C (-35°F).

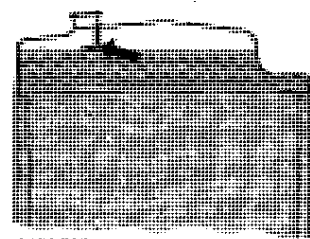
IMPORTANT: Use only JOHN DEERE engine coolant in the cooling system, independent of the season.

If JOHN DEERE engine coolant is not available, use a mixture of 50% ethylene-glycol antifreeze/corrosion inhibitor and 50% clear, soft water. This guarantees engine protection against corrosion and frost down to -36°C (-35°F).

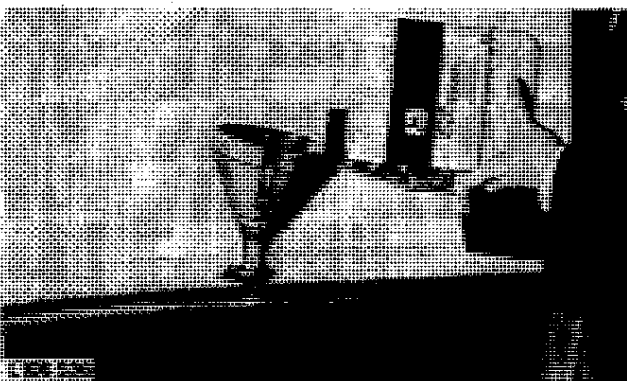
Never use any cooling system sealing additives.

Tractors With Expansion Tank

Coolant level should never drop below "MIN" mark.



L106538



L115279, L106538, L106538, L125483, LB31010AE-010888

CHECKING ENGINE IDLE SPEEDS

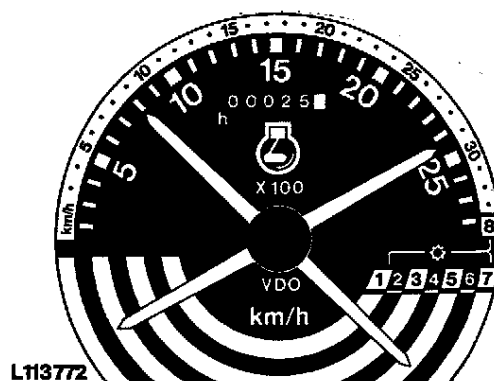
Tractors with Synchronized Transmission

Warm up engine to operating temperature and check speeds.

Slow idle speed: 750 to 850 rpm

Fast idle speed: 2410 to 2510 rpm

See Section 30, Group 15, for adjustment.



L113772

L113772-LB31010AE-010287

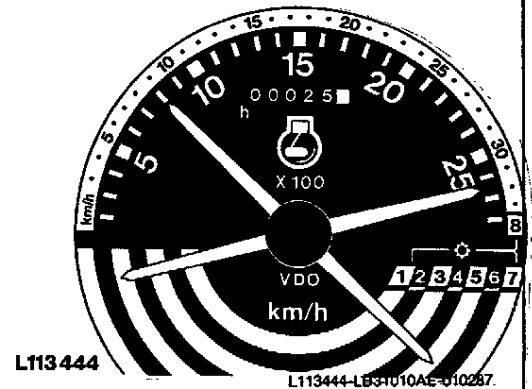
Tractors with Collar Shift Transmission

Warm up engine to operating temperature and check speeds.

Slow idle speed: 750 to 850 rpm

Fast idle speed: 2610 to 2660 rpm

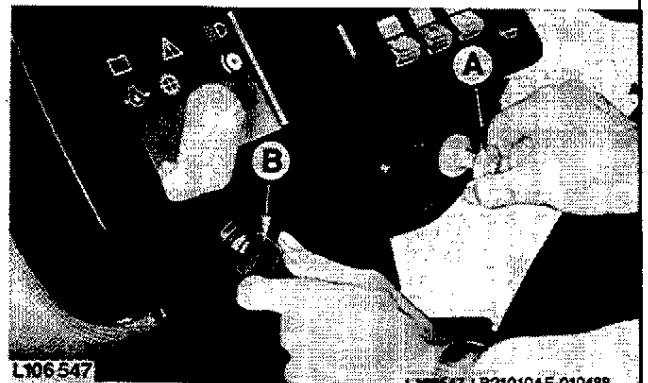
See Section 30, Group 15, for adjustment.



CHECKING FUNCTION OF ENGINE SHUT-OFF CABLE

Run engine at slow idle speed for 1 to 2 minutes.

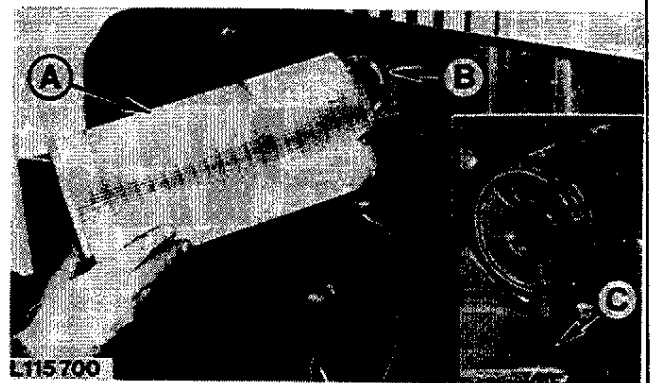
Completely pull out shut-off knob (A), making sure engine stops immediately. Switch off main switch (B).



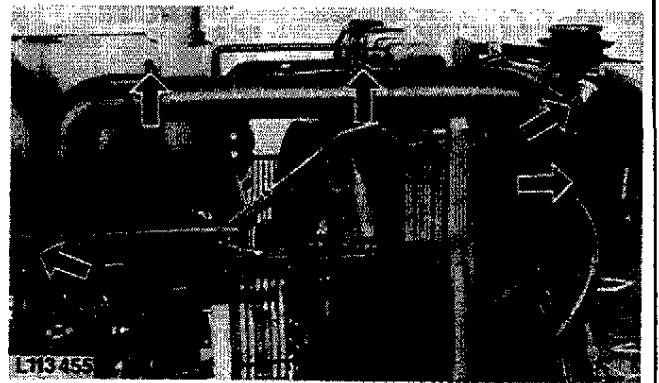
CHECKING AIR CLEANER AND SAFETY ELEMENTS FOR CORRECT INSTALLATION

Make sure that dust unloading valve (C) (rubber cap) is installed on air cleaner.

- A-Air cleaner element
- B-Safety element
- C-Dust unloading valve



CHECKING HOSE CLAMPS OF AIR INTAKE SYSTEM FOR TIGHTNESS

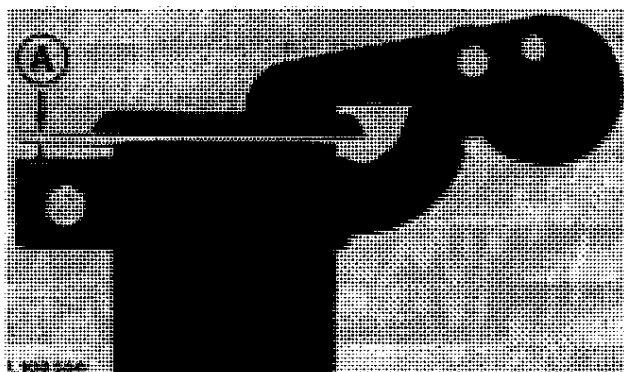


INSTALLING EXHAUST STACK

Up To Tractor Serial No. 629 372L

Install weather flap with flap hinge at the rear (as seen in direction of forward travel).

Distance (A) between cap and stack end must be 2 mm (5/64 in.).

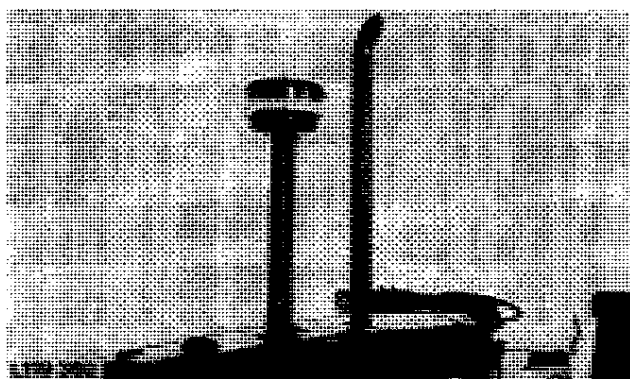


L108556-LB21010AE-010488

From Tractor Serial No. 629 373L

With SG2 Cab: Install exhaust stack with opening facing to the rear of tractor.

With Low Profile SG2 Cab or Without Cab: Install exhaust stack with opening facing to the left.



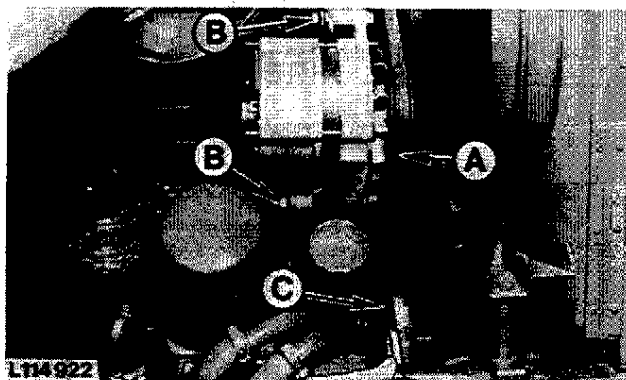
L119369-LB21010AE-010488

CHECKING FAN BELT TENSION

Using belt tension gauge JDST-28 (C) check tension of fan belt.

Fan belt should have 19 mm (3/4 in.) flex with 90 N (20 lb) pull midway between crankshaft and alternator or water pump.

- A-Fan belt
- B-Attaching nut
- C-Belt tension gauge (JDST-28)



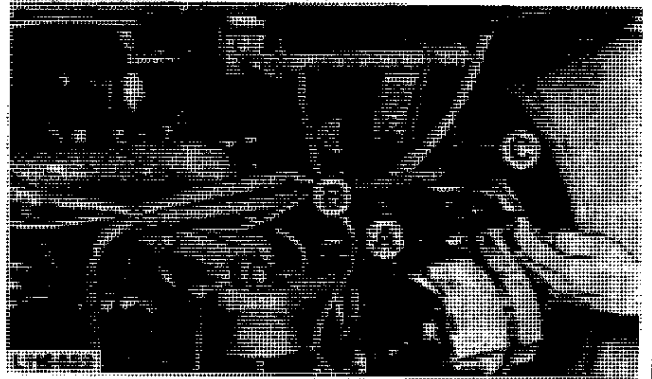
L114922-LB21010AE-010886

CHECKING COMPRESSOR BELT TENSION (Tractors with Air Conditioning System)

Using belt tension gauge JDST-28 (A) check compressor belt tension.

Compressor belt should have 19 mm (3/4 in.) flex with 60 N (13 lb) pull midway between both pulleys.

A—Belt tension gauge
(JDST-28)
B—Adjusting screw
C—Compressor belt



L116852-LB31010AE-010267

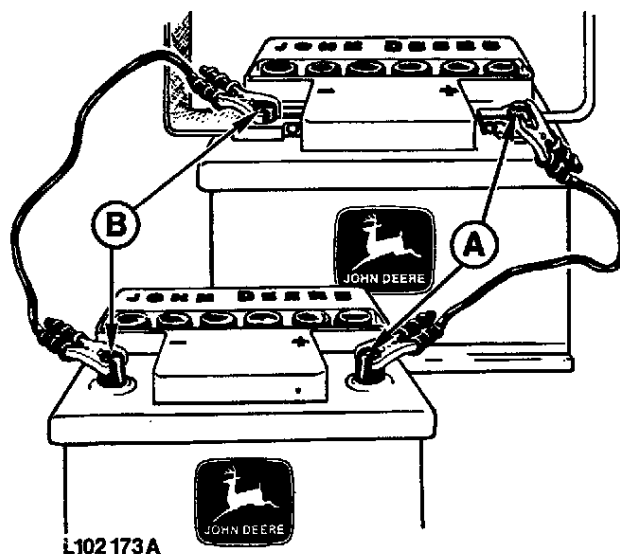
IMPORTANT NOTES

If the engine is to be run for a short time without battery (using a slave battery for starting), do not, under any circumstances, interrupt this circuit by switching off the main switch before stopping the engine by means of the fuel pump shut-off cable. An additional load (lights) must also be switched on. Do not run engine above 1000 rpm. Insulate battery end of disconnected starter cable properly to avoid damage to alternator and regulator.

On tractors equipped with an operator's cab, do NOT connect ground strap of slave battery to cab frame.

Observe proper polarity when connecting batteries and chargers. Improperly connected batteries ("+" and "-") result in immediate destruction of rectifier diodes.

A-Positive terminals
B-Negative terminals



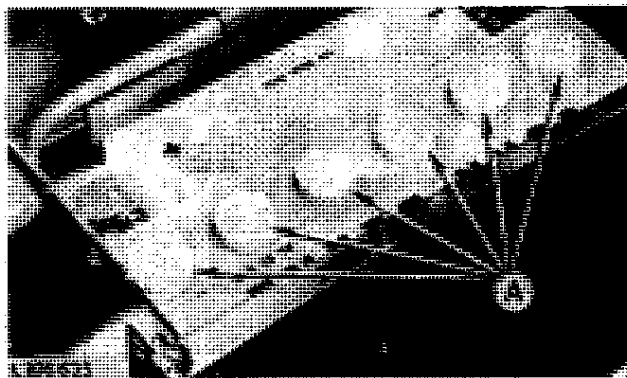
L102173A-LB31010AE-010287

CHECKING BATTERIES

Check battery terminals and cable ends and, if necessary, clean and coat them with petroleum jelly.

Check electrolyte level in each battery cell. If necessary, add distilled water to bring level above cell plates.

A-Filler caps

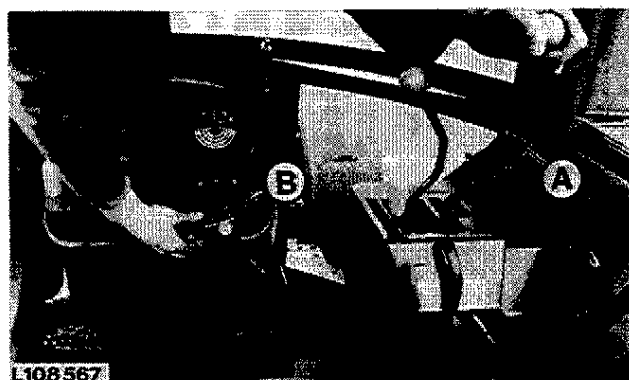


L106535-LA71010AE-091184

CHECKING START SAFETY SWITCH

Operate starter switch (B).

NOTE: Starting motor should turn only with the range shift lever (A) in neutral position.



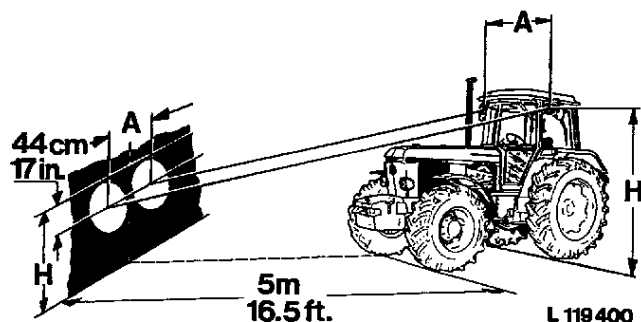
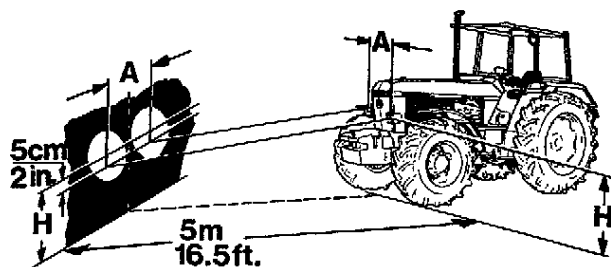
L108567-LB21010AE-010488

CHECKING LIGHTING SYSTEM

See Operator's Manual.

Check adjustment of headlights and adjust, when necessary.

When equipped, check adjustment of roof headlights and adjust, when necessary.

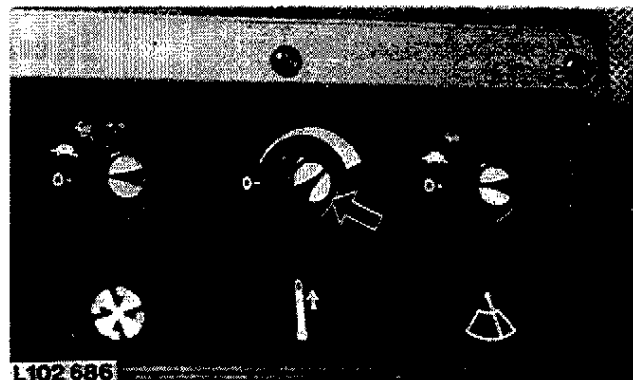


L119400-LB21010AE-010488

CHECKING HEATER CONTROL SWITCH

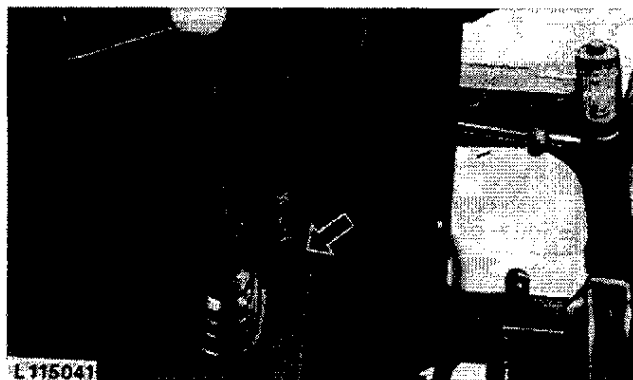
Tractors With SG2 Cab

With engine running at operating temperature, turn control switch to the right and wait until warm air enters cab through the air louvers.



Tractors With MC1 Cab

With engine running at operating temperature, turn control switch to the right and wait until warm air enters cab through the air louvers.



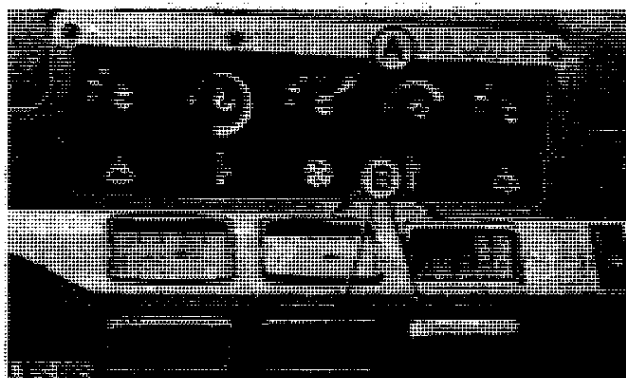
L102686,L115041-LB31010AE-010888

CHECKING FAN SWITCH

Tractors With SG2 Cab

Open air louvers (B).

Check function of three-stage cab ventilation and heater fan switch (A).



L102685-LB31010AE-010287

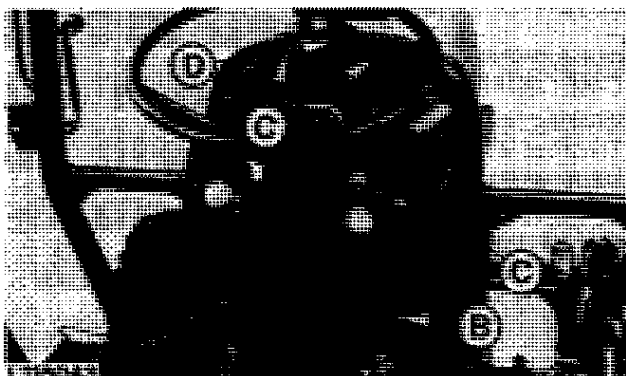
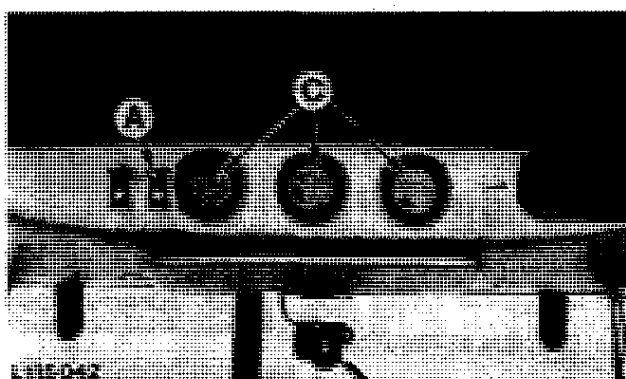
Tractors with MC1 Cab

Open air louvers (C).

Check function of fan switches (A) and (B).

- A-Switch (roof fan)
- B-Switch (dash fan)
- C-Air louvers
- D-Air flow selector switch

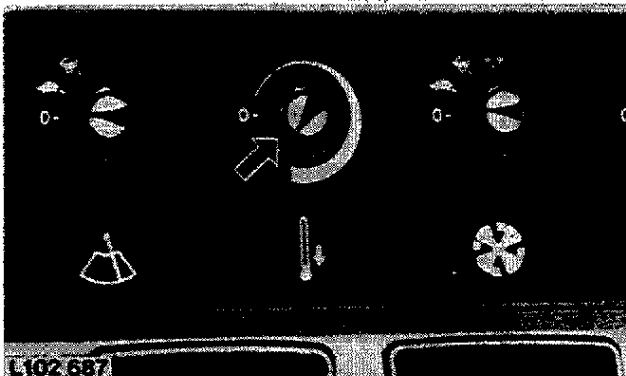
Also check function of air flow selector switch (D). This switch allows to change from fresh air intake to recirculating cab air.



L115042,L115043-LB31010AE-010287

CHECKING THERMOSTAT SWITCH (Tractors with Air Conditioning System)

With fan switched on, turn infinitely adjustable switch to the right and wait until cool air enters cab through the air louvers.



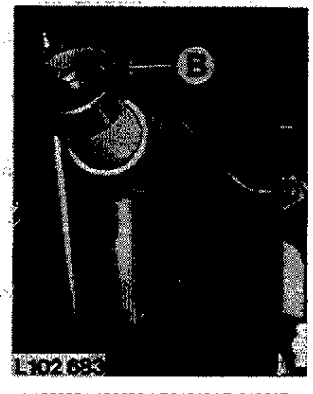
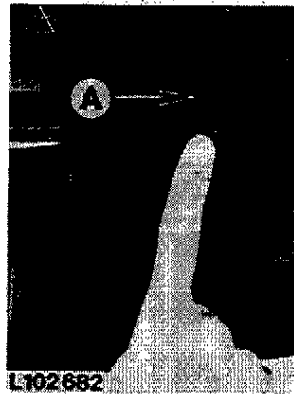
L102687-LB21010AE-010886

CHECKING WINDSHIELD WASHER SYSTEM

Tractors With SG2 Cab

Operate tumbler switch (A) of washer system.

Add a suitable commercially available anti-freeze solution to reservoir (B) if temperature is liable to drop below freezing point.



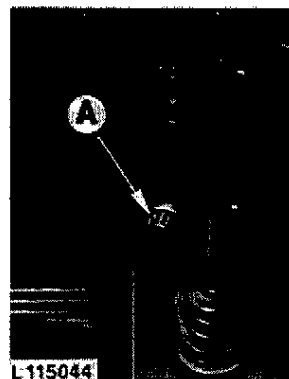
L102682

L102682, L102683-LB31010AE-010287

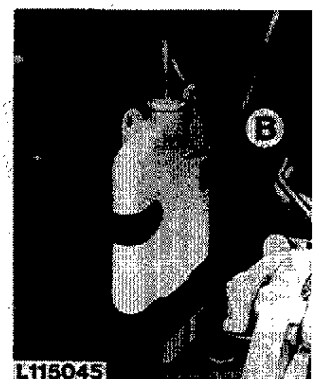
Tractors with MC1 Cab

Operate hand pump (A) of washer system.

Add a suitable commercially available anti-freeze solution to reservoir (B) if temperature is liable to drop below freezing point.



L115044



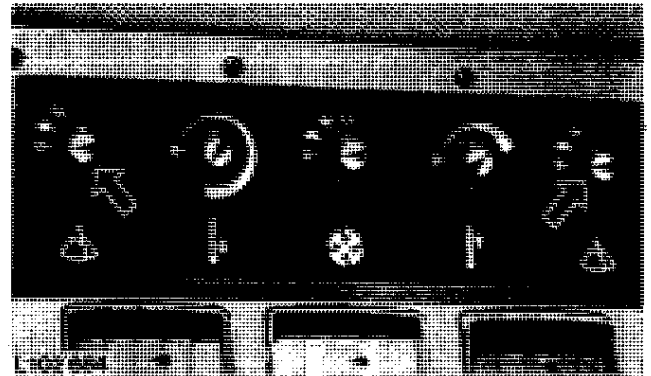
L115045

L115044, L115045-LB31010AE-010287

CHECKING FUNCTION OF WINDSHIELD WIPERS

Tractors With SG2 Cab

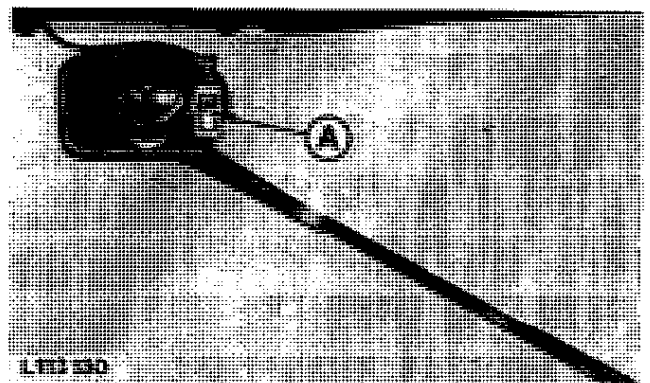
Check both windshield wiper speeds by turning both two-speed switches.



L102684-LB31010AE-010287

Tractors with MC1 Cab

Check windshield wiper operation by means of tumbler switch (A).



L113130

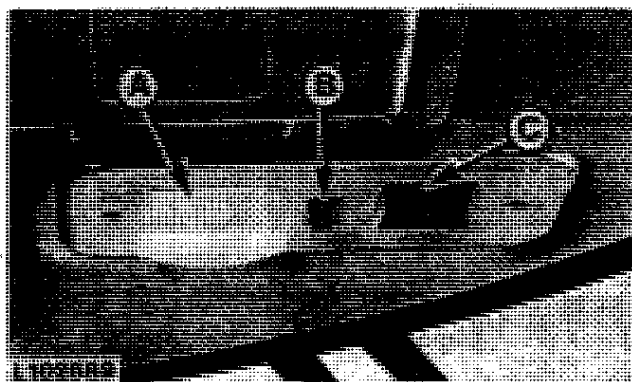
L113130-LB31010AE-010287

CHECKING CAB INTERIOR LIGHTS

Tractors With SG2 Cab

Turn switch (B) to position 1, lamp (A) glows continuously and, in position 2, it glows as long as cab door is open.

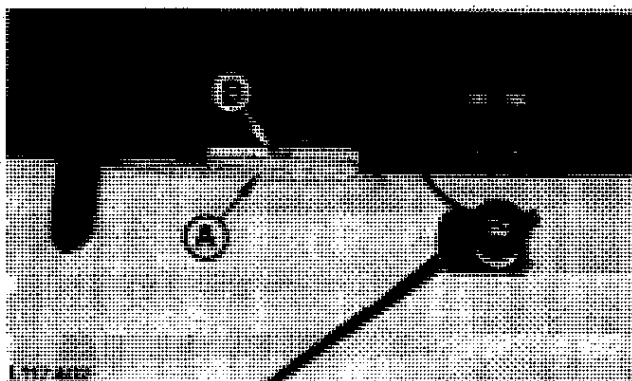
Lamp (C) illuminates transmission shift levers as soon as headlights are switched on.



L102689-LB31010AE-010287

Tractors with MC1 Cab

With switch (B) in right-hand position, lamp (A) should glow continuously.



L117402-LB31010AE-010888

CHECKING INSTRUMENTS AND INDICATOR LIGHTS

See Operator's Manual.

INSPEK-LB21010FE-010886

CHECKING TRANSMISSION/HYDRAULIC SYSTEM OIL LEVEL

IMPORTANT: Check oil level when oil is cold.

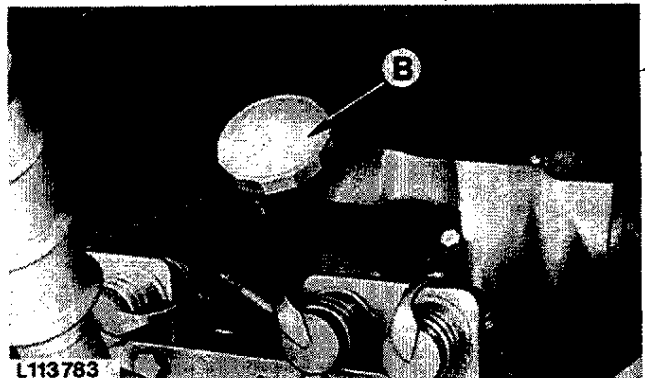
Park tractor on level ground. Completely lower rock-shaft. When equipped, fully lower front hitch. Remove dipstick (A) and wipe clean. Reinsert dipstick, again remove and check oil level.

NOTE: If oil level is below top mark, top up with oil to bring level up to top mark on dipstick through filler neck (B).

IMPORTANT: After having topped up transmission with oil, wait for a period of five minutes before rechecking oil level with dipstick.

If necessary, add JOHN DEERE Hy-Gard transmission and hydraulic oil or equivalent (see Group 15) to bring oil level to top mark on dipstick.

NOTE: Types of oil not meeting our specifications will not give satisfactory service and may result in eventual damage.

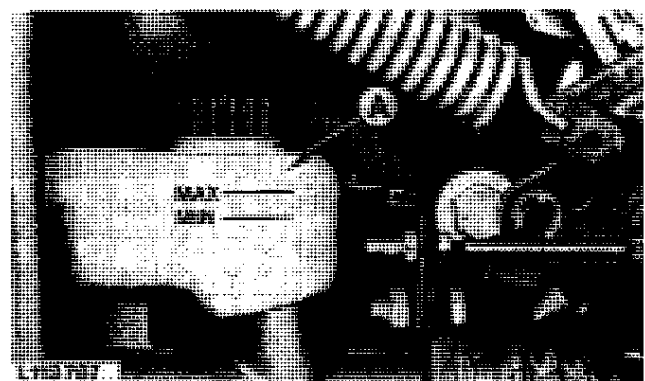


L118446, L113094, L113783-LB21010AE-010488

CHECKING BRAKE FLUID LEVEL (With Hydraulically Operated Clutch)

Level of fluid should be between the marks "MIN" and "MAX". Add brake fluid type FMVSS 116 DOT 4, when necessary.

A-Reservoir



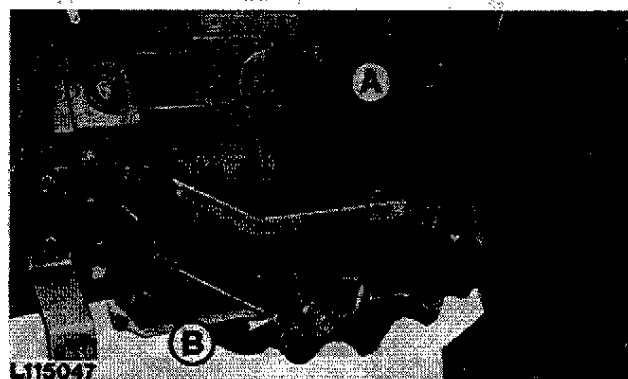
L113787-LB31010AE-010888

CHECKING CLUTCH PEDAL FREE TRAVEL (With Mechanically Operated Clutch)

Clutch pedal free travel (A) should be 25 mm (1 in.).

When necessary, adjust clutch pedal free travel by turning yoke (B).

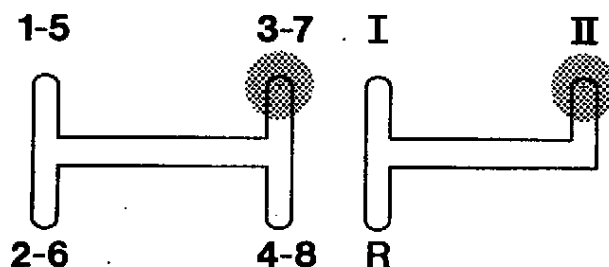
IMPORTANT: Clutch pedal free travel should never be less than 13 mm (approx. 1/2 in.). Should clutch pedal free travel be less than specified minimum, do not operate tractor until clutch pedal free travel has been adjusted to specifications.



L115047-LB31010AE-000287

CHECKING TRANSMISSION

Drive tractor on trial run, shifting transmission through all gears. Remedy any defects.



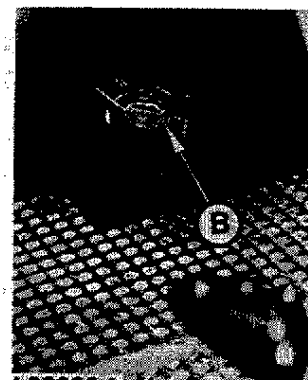
L106 549

L106549-LB31010AE-010287

CHECKING DIFFERENTIAL LOCK

Drive tractor, checking functions of differential lock by operating hand lever (A) or pedal (B).

IMPORTANT: Never turn the tractor with differential lock engaged.



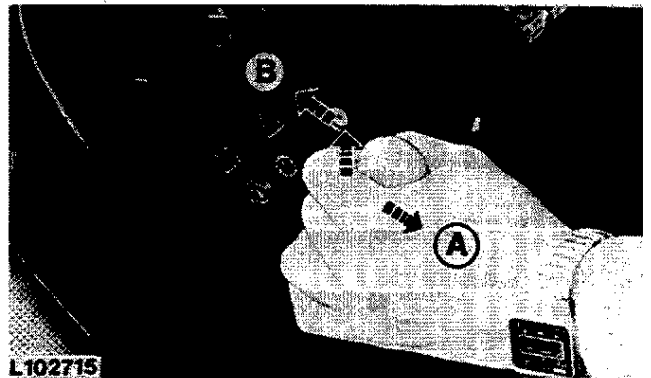
L32030 A
L114575, L32030A-LB31010AE-010287

CHECKING REAR PTO

Run engine.

Tractors With Cab

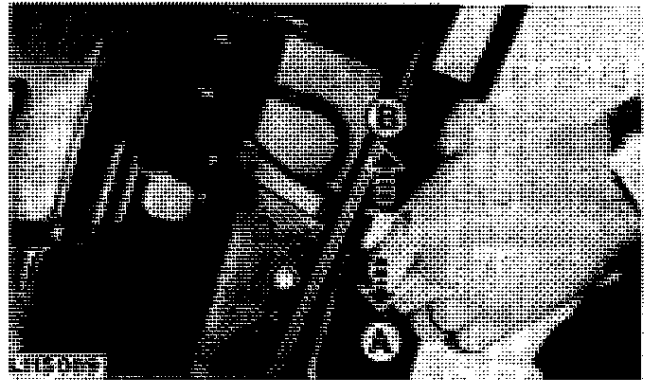
Raise shift lever and push forward.



Tractors Without Cab

Up to tractor Serial No. 618 706L: Raise shift lever and push forward.

From tractor Serial No. 618 707L: Raise shift lever.



A—PTO disengaged
B—PTO engaged

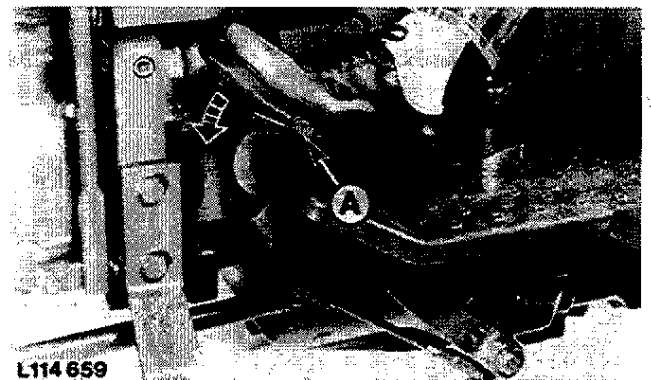
L102715, L115069-LB31010AE-010888

CHECKING CONTINUOUS-RUNNING PTO (Tractors With Collar Shift Transmission)

Engage PTO by means of lever (B) only when clutch pedal (A) is fully depressed.



CAUTION: Never engage PTO with tractor in motion.

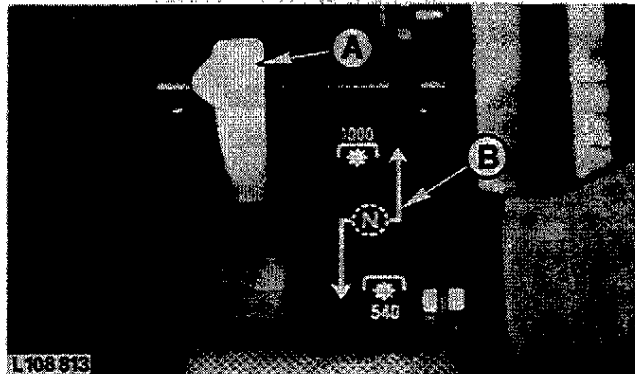


L114659, L115159-LB31010AE-000287

CHECKING PTO SPEED SHIFT LEVER (When Equipped)

With PTO switched off, check shift positions (see decal "B") with lever (A).

NOTE: Center position is neutral position.



L106813-LB31010AE-010287

CHECKING FRONT PTO (When Equipped)

With engine shut-off, engage front PTO transmission by means of lever (A).



CAUTION: Engage PTO transmission with engine shut-off only.

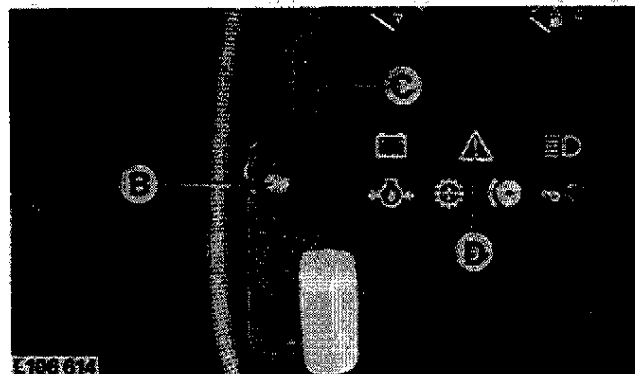
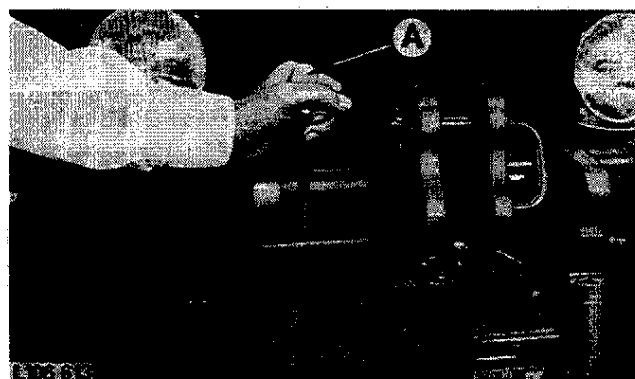
Engage and disengage front PTO clutch with tumbler switch (B) with engine running.

Control light (C) glows when front PTO is engaged.

NOTE: Control light (D) flashes when front PTO has been engaged with tumbler switch (B) before engine has been started.

A-Lever
B-Tumbler switch

C-Control light
D-Control light



L106813,L106814-LB31010AE-010287

CHECKING HI-LO SHIFT UNIT (When Equipped)

Drive tractor and operate Hi-Lo shift unit, i.e. move Hi-Lo shift unit lever to both reduced and normal speed position several times, precisely observing Hi-Lo shift unit operation each time.

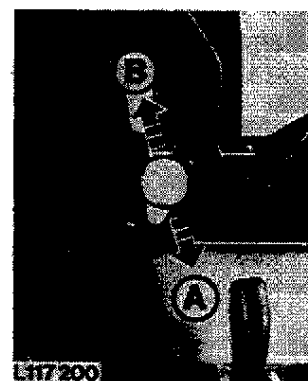
Simulate tractor working under load by applying brakes.

Low oil pressure will be indicated by disk pack slippage, causing the clutch pack to become noisy.

Mechanical failure in the Hi-Lo shift unit will also be indicated by unusual noise.

A—Reduced speed
B—Normal speed

IMPORTANT: On tractors equipped with an SG2 cab, Hi-Lo shift unit cannot be shifted with clutch pedal depressed.



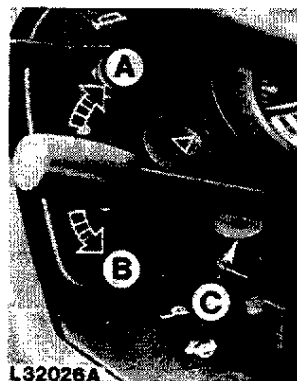
L12488 A

L102867, L117200, L12488A-LB31010AE-010888

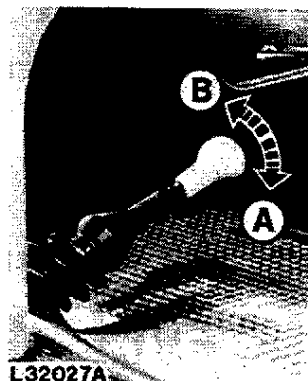
CHECKING CREEPER TRANSMISSION (When Equipped)

IMPORTANT: Engage creeper transmission only in I (Low) or reverse range and with clutch pedal depressed.

A—Reduced speed
B—Normal speed
C—Control lever lock



L32026A



L32027A



L 14797A

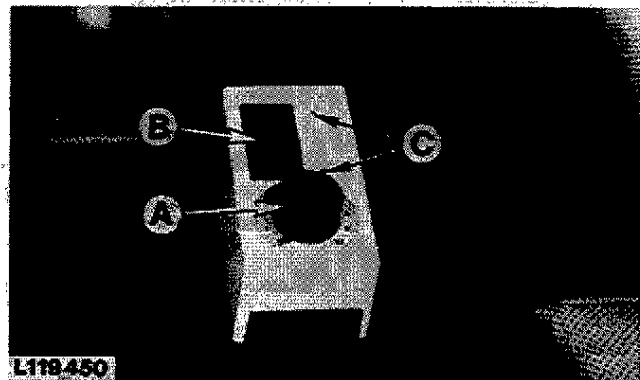
L32026A, L32027A, L14797A-LB31010AE-000287

CHECKING HYDROSTATIC CREEPER TRANSMISSION (When Equipped)

IMPORTANT: Engage creeper transmission only with range shift lever in neutral and front-wheel drive engaged.

A—Rotary switch for engaged, disengaged and ground travel speed

B—Switch for travel direction
C—Indicator lights for travel direction



L119450-LB31010AE-010888

CHECKING AXLE HOUSING OIL LEVEL (Tractors With Front Wheel Drive)

Remove level plug (A). Oil should be level with plug bore.

When necessary, top up with oil, using an EP transmission oil as specified in Group 15 of this section.

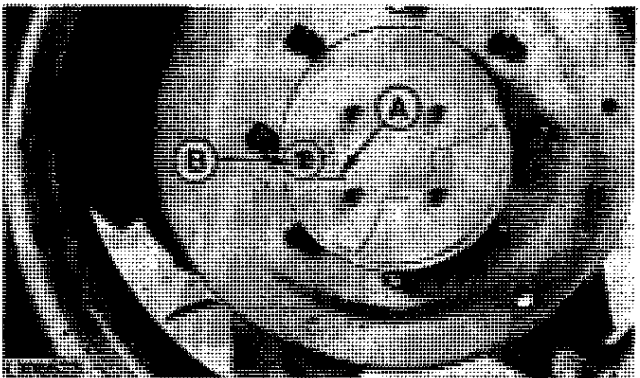


L100056-LB31010AE-010287

CHECKING WHEEL HUB HOUSINGS OIL LEVEL (Tractors With Front Wheel Drive)

Turn wheel until oil level mark (A) is horizontal. Remove level plug (B). Oil should be level with plug bore.

When necessary, top up with oil, using an EP transmission oil as specified in Group 15 of this section.

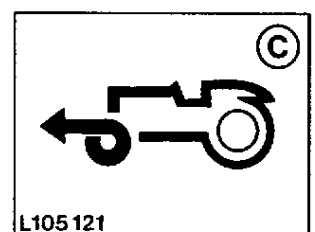
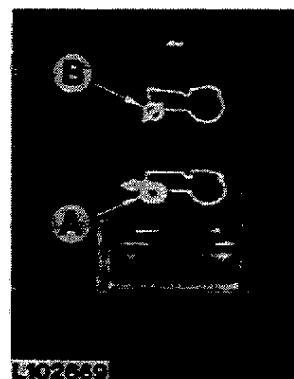


L106623-LB31010AE-010287

CHECKING FUNCTION OF FRONT WHEEL DRIVE (Tractors With Front Wheel Drive)

Drive tractor, engaging and disengaging front wheel drive by operating tumbler switch.

A—Front wheel drive engaged
B—Front wheel drive disengaged
C—Control light glows when front wheel drive is engaged



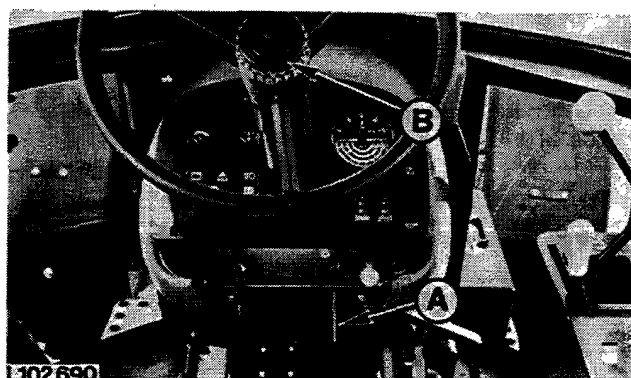
L105121

L102669, L105121-LB21010AE-010886

CHECKING HYDROSTATIC STEERING SYSTEM

Start engine and turn steering wheel to left and right.

A-Steering wheel tilt adjustment
B-Steering wheel height adjustment



A-Steering wheel tilt adjustment



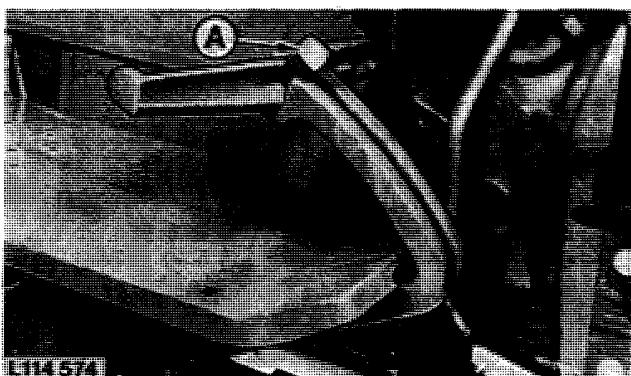
L102690,L113774-LB21010AE-010886

CHECKING FUNCTION OF FOOT BRAKES

Load each brake pedal with 270 N (60 lb) for one minute. Loaded pedal should drop approx. 25 mm (1 in.) only during this time.

NOTE: Do not check both brake pedals simultaneously, but each pedal individually.

A-Pedal coupler

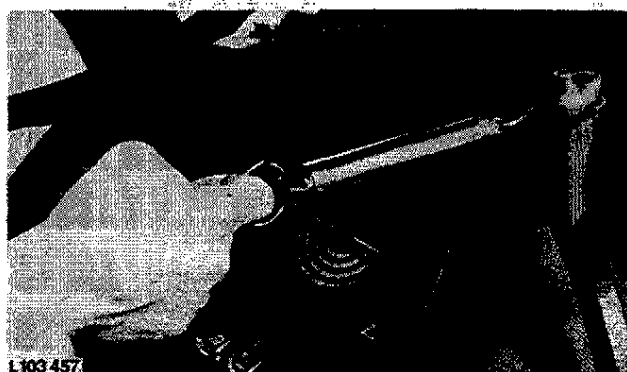


L106559,L114574-LB31010AE-010287

CHECKING HANDBRAKE ADJUSTMENT

Pull handbrake lever to third or fourth notch with a force of 110 N (25 lb).

When necessary, adjust handbrake (see Section 60, Group 30).

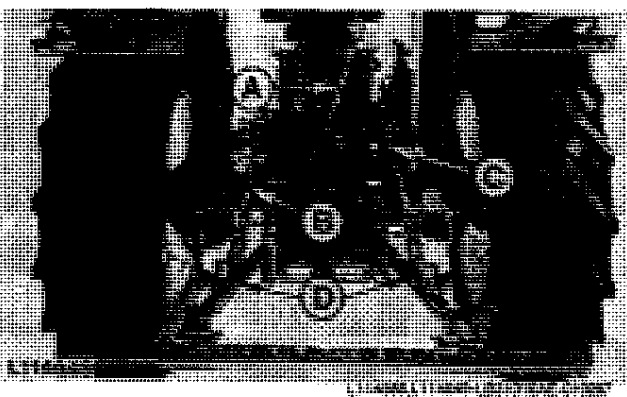
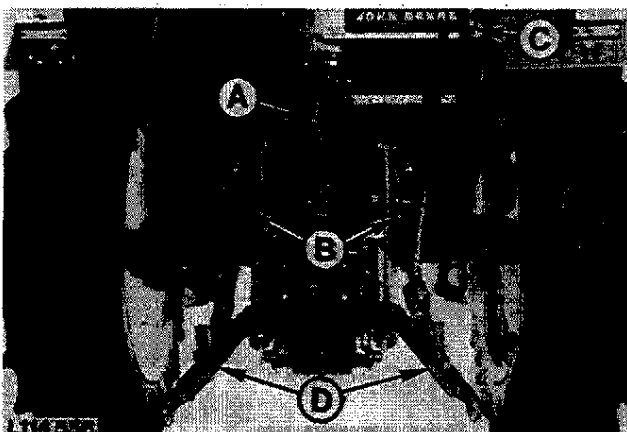


L103457, L112619-LB31010AE-010888

CHECKING THREE-POINT HITCH

Install and/or adjust draft links and center link of three-point hitch. See Operator's Manual for adjustment.

A—Center link
B—Lift links
C—Adjusting handle for lift links
D—Draft links



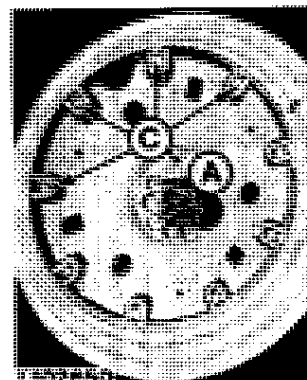
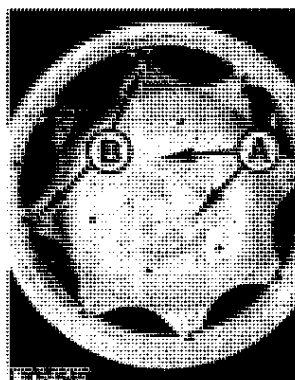
CHECKING HYDRAULIC SYSTEM FOR LEAKS

Repair leaks when necessary.

INSPEK-LA71010GE-091184

CHECKING TORQUE OF REAR WHEEL ATTACHING BOLTS

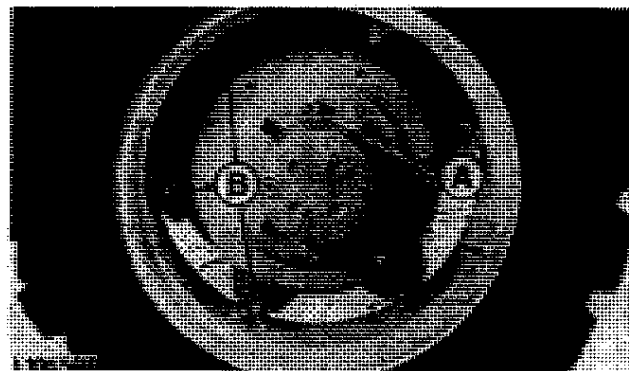
A—400 Nm (300 ft-lb)
B—M16 x 120 attaching bolt
250 Nm (185 ft-lb)
M16 x 74 attaching bolt
280 Nm (210 ft-lb)
9/16 in. attaching bolt
200 Nm (145 ft-lb)
C—230 Nm (170 ft-lb)



CHECKING TORQUE OF FRONT WHEEL ATTACHING BOLTS

Tractors With Front Wheel Drive

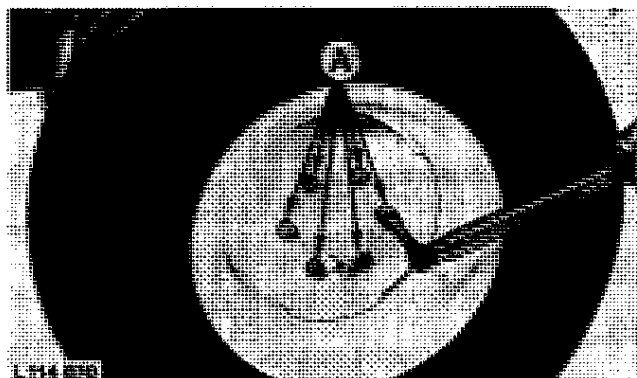
A—300 Nm (220 ft-lb)
B—M16 x 120 attaching bolt
250 Nm (185 ft-lb)
M16 x 74 attaching bolt
280 Nm (210 ft-lb)



L106540-LB21010AE-000488

Tractors Without Front Wheel Drive

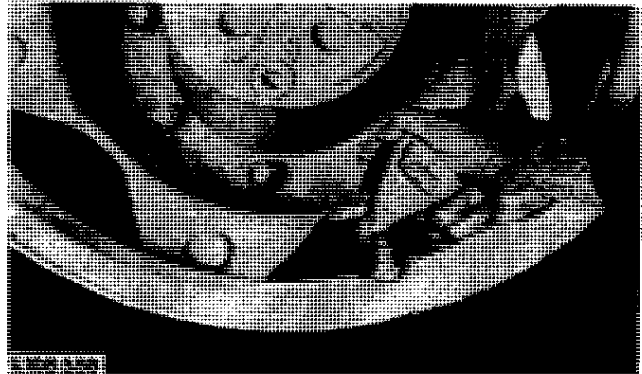
A—150 Nm (110 ft-lb)



L114870-LB31010AE-010888

CHECKING TIRE PRESSURES

A pressure of 160 kPa (1.6 bar; 23 psi) is recommended for field use. If tractor is driven 20% or more on hard roads, tire pressures must be increased according to tire manufacturer's recommendations.



L108658-LA71010AE-091184

ADJUSTING WHEEL TREAD WIDTH

NOTE: Adjust in accordance with customer's needs.

See Operator's Manual.

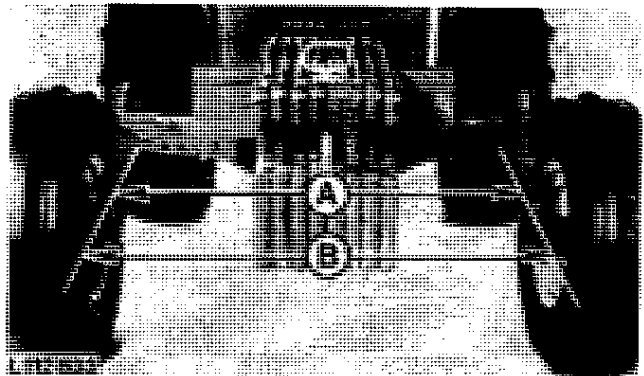
INSPEK-LA71010HE-091184

CHECKING FRONT WHEEL TOE-IN

Tractors Without Front Wheel Drive

If necessary, correct toe-in.

Dimension (B) must be 3 to 6 mm (1/8 to 1/4 in.) less than dimension (A) at rear.

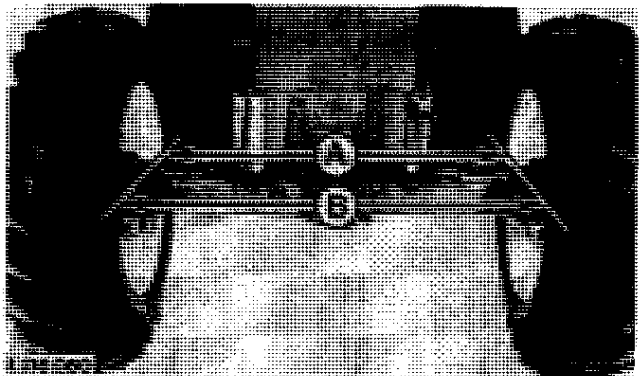


L112833-LB41010AE-010687

Tractors With Front Wheel Drive

If necessary, correct toe-in.

Dimension (B) must be 0 to 3 mm (0 to 1/8 in.) less than dimension (A) at rear.

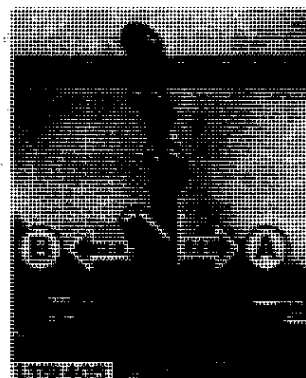
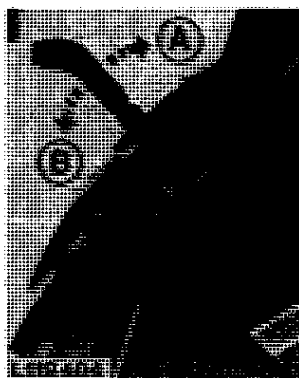


L116060-LB41010AE-010687

CHECKING ROCKSHAFT FUNCTIONS

See Operator's Manual.

A—Raise implement
B—Lower implement

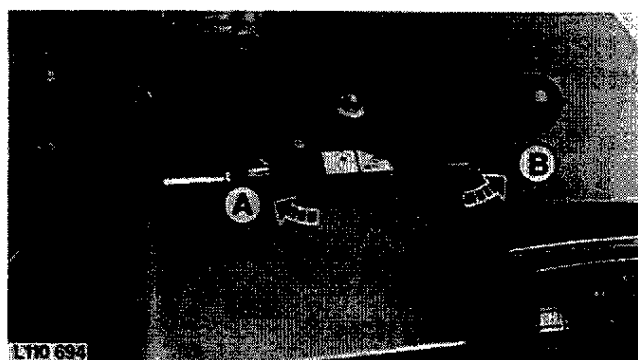


L119404, L119405-LB31010AE-010888

CHECKING FUNCTION OF ROCKSHAFT REMOTE CONTROL (When Equipped)

IMPORTANT: Operating rockshaft with the remote control is only effective with rockshaft selector lever in "MIN" position.

A—Lower rockshaft
B—Raise rockshaft

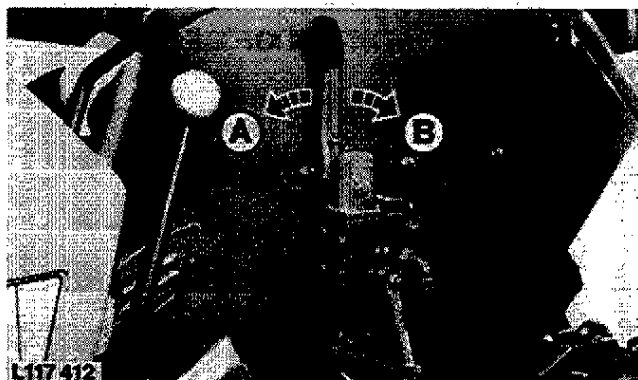


L110694-LB31010AE-010888

CHECKING FUNCTION OF SELECTIVE CONTROL VALVES

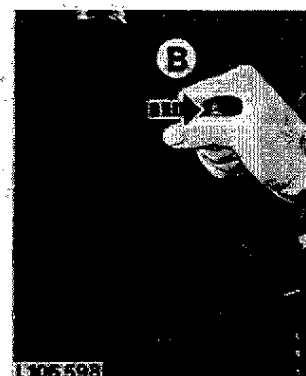
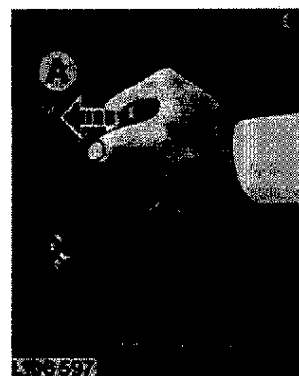
Tractors Without Cab

Connecting rods must be adjusted so that distance of control lever travel for complete lifting (B) and lowering (A) is the same.



Tractors With SG2 Cab

Connecting rods must be adjusted so that distance of control lever travel for complete lifting (B) and lowering (A) is the same.



L117412, L106598, L106597-LB31010AE-010888

LUBRICATING TRACTOR

Lubricate all lubricating points on tractor as described in Group 15 of this section, using JOHN DEERE EP multipurpose grease or SAE EP multipurpose grease.

INSPEK-LB21010GE-000886

CHECKING GUARDS FOR PROPER INSTALLATION

See Operator's Manual.

INSPEK-LA71010JE-091184

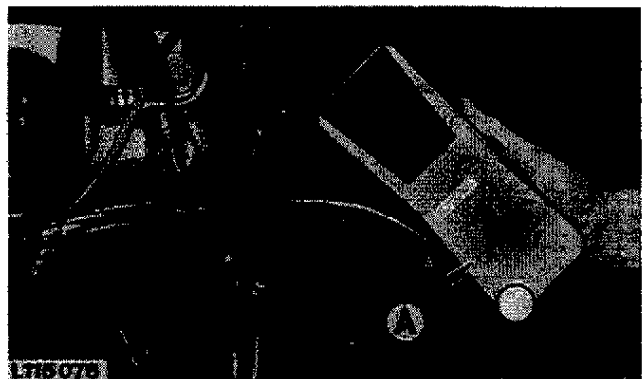
CHECKING CONDITION OF DECALS AND PAINT

INSPEK-LA71010KE-091184

CHECKING AIR CONDITIONING SYSTEM REFRIGERANT LINES FOR LEAKS

A-Leak tester FKM10001-5 is part of tester FKM10001

See Section 90, Group 06, in the event of malfunctions.



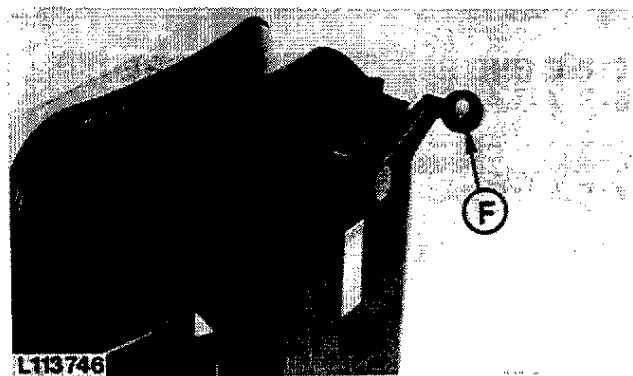
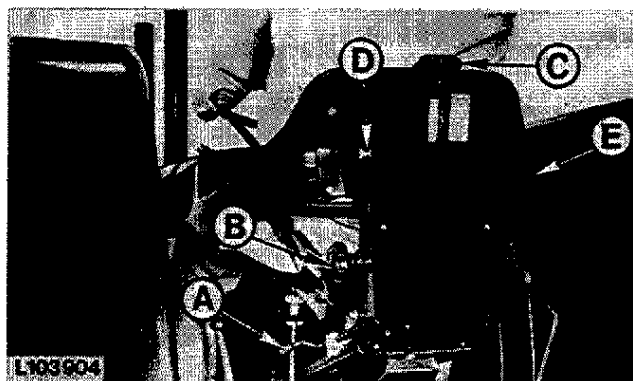
L115076-LB31010AE-010888

CHECKING FUNCTIONS OF OPERATOR'S SEAT

DE LUXE SEAT

- A—Catch for horizontal adjustment
- B—Handwheel for height adjustment
- C—Handwheel for seat adjustment according to operator's weight (arrows (D) must be in line when operator is seated)
- E—Release button for seat safety belt
- F—Crank handle for height adjustment

Certain seat versions have a crank handle (F) instead of the handwheel (B).



L103904, L113746-LB21010AE-010885

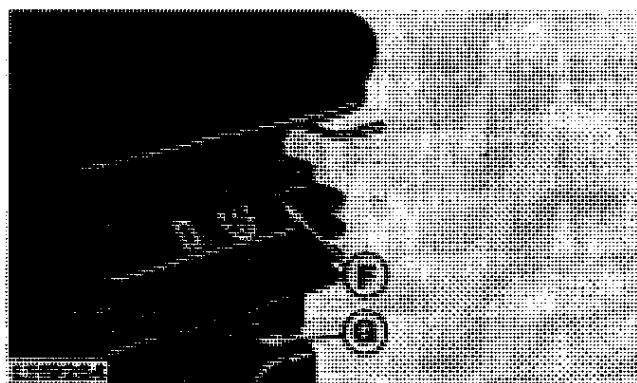
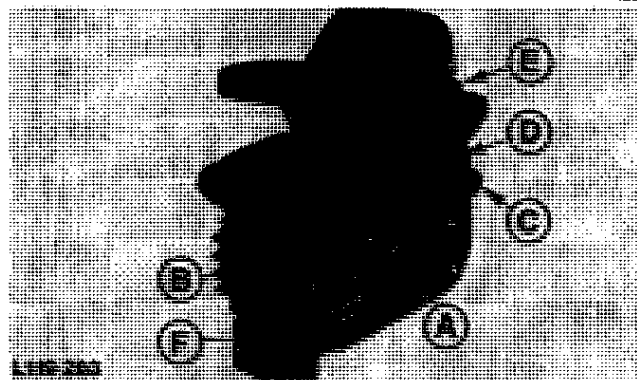
SUPER DE LUXE SEAT

- A—Handle for electro-pneumatic weight and height adjustment
- B—Length adjustment
- C—Back rest adjustment
- D—Arm rest height adjustment
- E—Lumber support adjustment
- F—Lever for horizontal movement
- G—Hand wheel for mechanical weight adjustment

With electro-pneumatic weight and height adjustment, pull up handle (A) to adjust for operator's weight. To raise seat, pull up handle and push to the rear. To lower seat, pull up handle and pull to the front.

With mechanical seat height adjustment, to raise seat lift seat up until it is locked in position (a click must be heard). To lower seat, raise seat to stop and then lower to the desired position. With mechanical weight adjustment, turn hand wheel (G) as required.

On seat versions for tractors up to 40 km/h (25 mph), lever (F) permits horizontal movement of the seat.

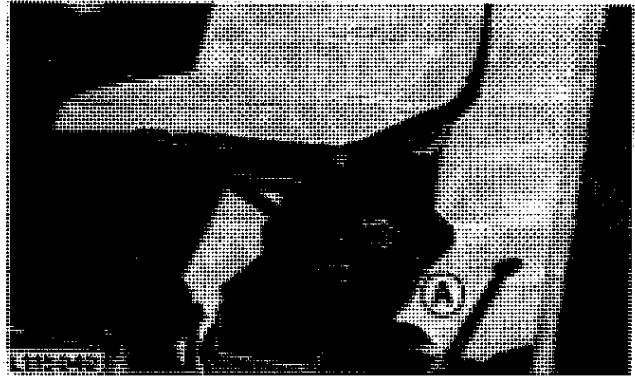


L119283, L119284-LB21010AE-010488

STANDARD SEAT

Adjust for operator's weight as for De Luxe seat.

**A—Attaching screws
(for horizontal adjustment)**



L115049-LB31010AE-010287

CHECKING SG2 CAB FOR CORRECT INSTALLATION

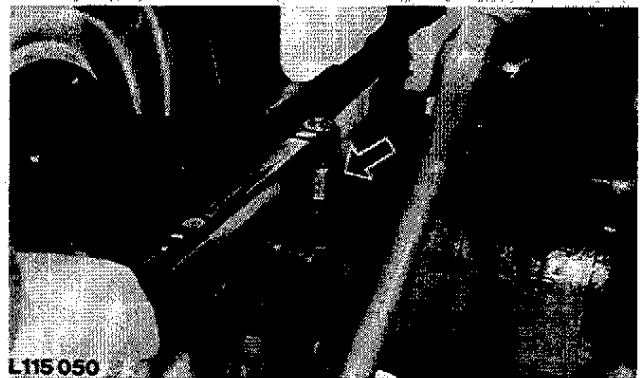
Check cap screws and hex. nuts for specified torque of 200 Nm (145 ft-lb).



L114611-LB31010AE-010287

CHECKING MC1 CAB FOR CORRECT INSTALLATION

Check cap screws and hex. nuts for specified torque of 245 Nm (180 ft-lb).

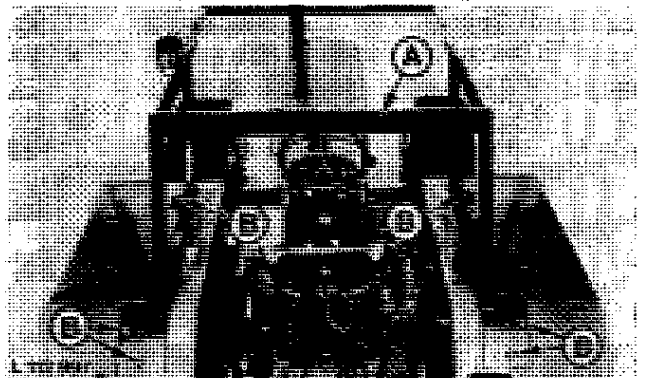


L115050-LB31010AE-010287

CHECKING FOUR-POST ROLL GUARD FOR CORRECT INSTALLATION

Check cap screws (B) for specified torque of 120 Nm (85 ft-lb).

**A—Roll guard
B—Cap screws**



L112997-LB31010AE-010287

CHECKING TWO-POST ROLL GUARD FOR CORRECT INSTALLATION

Check cap screws and hex. nuts for specified torque of
230 Nm (170 ft-lb).



L115077, L115078-LB41010AE-010687

DELIVERY INSPECTION

A thorough discussion of the operation and service of the tractor at the time of its delivery helps to assure complete customer satisfaction with his JOHN DEERE tractor.

Proper delivery should therefore be an important part of the dealer's program.

It is a well-known fact that many complaints have arisen simply because the owner was not shown how to operate and service his new tractor properly. Therefore, enough time should be devoted, at the customer's convenience, to introducing him to his new tractor and explaining to him how to operate and service it.

Using the tractor operator's manual as a guide, be sure that the owner understands the following points properly:

1. The importance of the safety rules.
2. Operation of control levers and instruments.

3. Starting and shutting off the engine.

4. The importance of the tractor break-in period.

5. Use of counterweights and proper tire inflation pressure as well as filling of tires with water and calcium chloride, if required.

6. All functions of the hydraulic system.

7. Operating the PTO.

8. The importance of lubrication and periodic service.

Give particular emphasis to sway blocks, rockshaft speed-of-drop, rockshaft selector lever (load and depth control), transmission oil pressure indicator light, engine oil pressure indicator light (whether temperature or pressure and what to do if lights go on), alternator indicator light (indicating whether alternator is charging) and operator's cab air filters. These areas are very often misunderstood.

INSPEK-LB21010AE-030389

AFTER-SALES INSPECTION

In the interest of the purchaser and dealer, an After-Sale inspection should be carried out by the dealer after the first 100 hours of using a new JOHN DEERE tractor.

The purpose of this inspection is to make sure that the customer is receiving satisfactory performance from his tractor. At the same time, the inspection should reveal whether or not the tractor is being operated, lubricated and serviced properly.

NOTE: Should any malfunction occur during the inspection, then refer to Technical Manual "Engines" or "Operation and Tests".

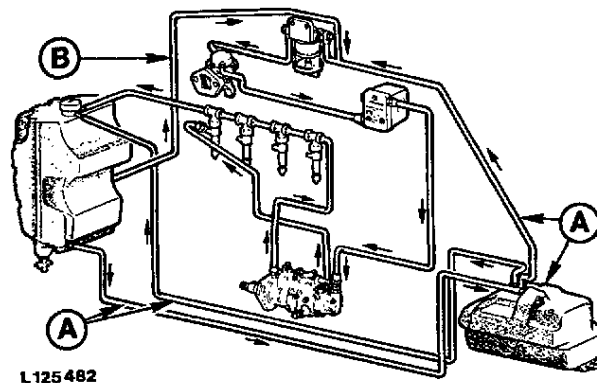
Through this inspection, a needless volume of service work can be eliminated by preventing minor difficulties from developing into serious problems later on. It will also promote stronger dealer-customer relations and give the customer an opportunity to ask questions that may have arisen during the first few days of use. The dealer may also have the further opportunity of promoting the possible sale of other new equipment.

The following inspection program is recommended:

INSPEK-LB21010HE-010886

CHECKING FUEL LINES FOR LEAKS

A—Tractors with auxillary fuel tank
B—Tractors without auxillary fuel tank



L125482-LB31010AE-010888

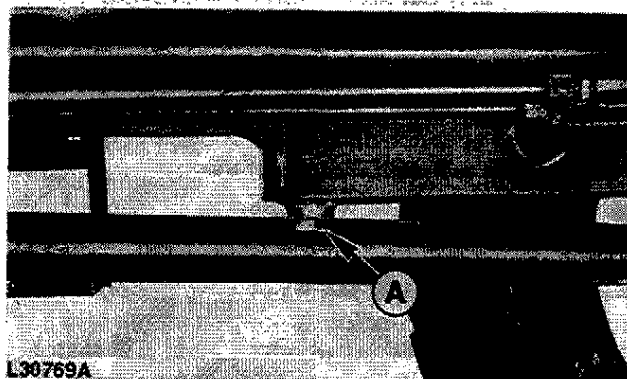
EXAMINING ENGINE FOR LEAKS

INSPEK-LB21010EE-010886

CHANGING ENGINE OIL

Drain oil while engine is shut off, but still warm.

A—Drain plug



Fill with fresh oil of the correct viscosity (see Group 15).

Oil quantity with filter change:
10.0 liters (2.6 U.S. gal.)

B—Filler neck



L30769A, L112614-LB31010AE-010287

CHANGING ENGINE OIL FILTER

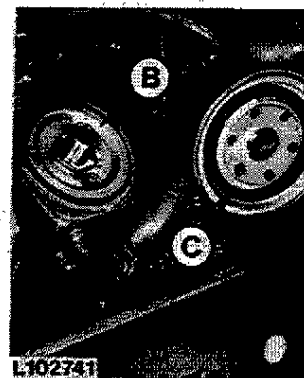
Unscrew oil filter (A) and clean filter mounting surface (B).

Apply a thin layer of oil to seal ring (C). Screw in new filter until seal ring just touches mounting surface, then turn an additional 1/2 to 3/4 turns. Do not over-tighten.

Start engine and check drain plug and filter seat for leaks.

Shut off engine and check oil level.

A—Oil filter
B—Filter mounting surface
C—Seal ring



L102740, L102741-LB31010AE-010287

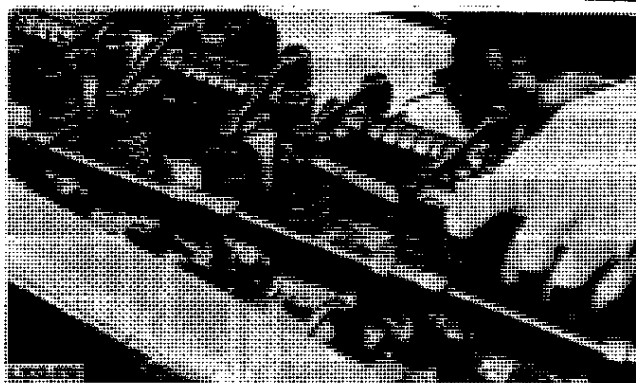
CHECKING VALVE CLEARANCE

Check valve clearance using a feeler gauge.

Valve clearance (with engine cold or warm):

- Intake valve: 0.35 mm (0.014 in.)
- Exhaust valve: 0.45 mm (0.018 in.)

If required, readjust valve clearance.



L103619-LB21010AE-010886

CHECKING COOLANT LEVEL

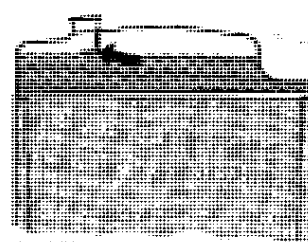
Tractors Without Expansion Tank

Coolant must reach up to marking plate in radiator.

If necessary, add coolant. See Group 15.



L115279



L106538

L115279,L106538-LB31010AE-010888

Tractors With Expansion Tank

Coolant level should never drop below mark "MIN".

If necessary, add coolant. See Group 15.



L125483

L125483-LB31010AE-010888

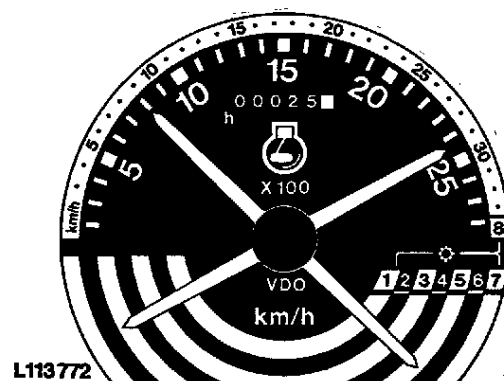
CHECKING ENGINE IDLE SPEEDS

Tractors with Synchronized Transmission

Warm up engine to operating temperature and check speeds.

Slow idle speed: 750 to 850 rpm
Fast idle speed: 2410 to 2510 rpm

See Section 30, Group 15, for adjustment.



L113772

L113772-LB31010AE-010287

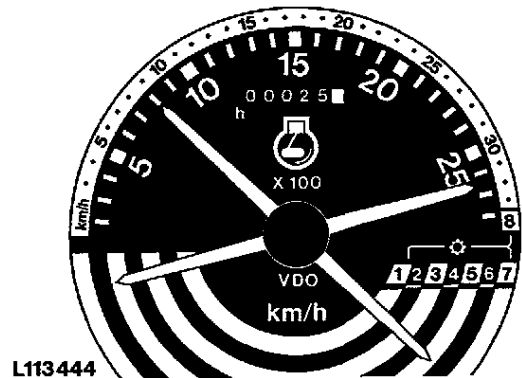
Tractors with Collar Shift Transmission

Warm up engine to operating temperature and check speeds.

Slow idle speed: 750 to 850 rpm

Fast idle speed: 2610 to 2660 rpm

See Section 30, Group 15, for adjustment.

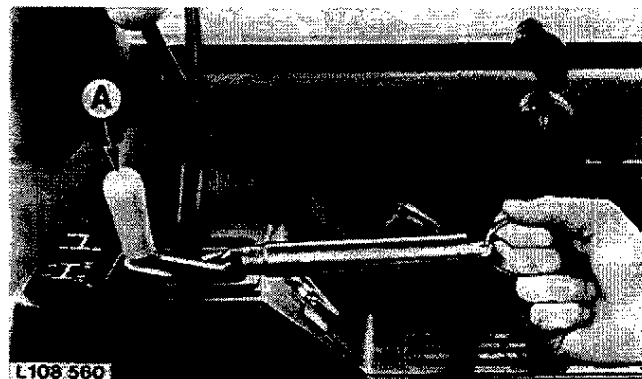


L113444-LB31010AE-010287

CHECKING FUNCTION OF HAND THROTTLE LEVER

Tractors With SG2 Cab

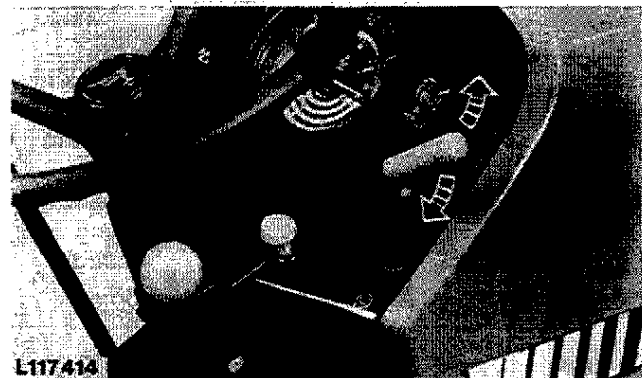
NOTE: On tractors with SG2 cab, throttle lever (A) must be adjusted so that a force of 13.5 N (3 lb) is needed to move lever to the rear.



Tractors Without Cab or With MC1 Cab

Check movement of hand throttle lever.

See Section 30, Group 15, in the event of malfunction.



L108560, L117414-LB31010AE-010888

CHECKING FUNCTION OF ENGINE SHUT-OFF CABLE

Run engine at slow idle for 1 to 2 minutes.

Completely pull out shut-off knob (A), making sure engine stops immediately. Switch off main switch (B).



CHECKING AIR CLEANER AND SAFETY ELEMENTS FOR CORRECT INSTALLATION

Make sure that dust unloading valve (C) (rubber cap) is installed on air cleaner.

- A—Air cleaner element
- B—Safety element
- C—Dust unloading valve



L115700-LB31010AE-010287

CHECKING HOSE CLAMPS OF AIR INTAKE SYSTEM FOR TIGHTNESS



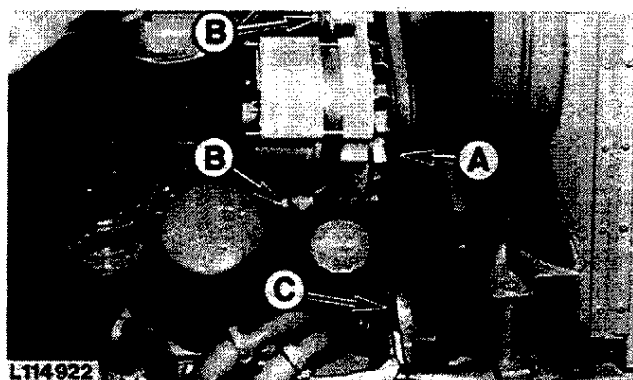
L113455-LB31010AE-010287

CHECKING FAN BELT TENSION

Using belt tension gauge JDST-28 (C) check tension of fan belt.

Fan belt should have 19 mm (3/4 in.) flex with 90 N (20 lb) pull midway between crankshaft and alternator or water pump.

- A—Fan belt
- B—Attaching nut
- C—Belt tension gauge (JDST-28)



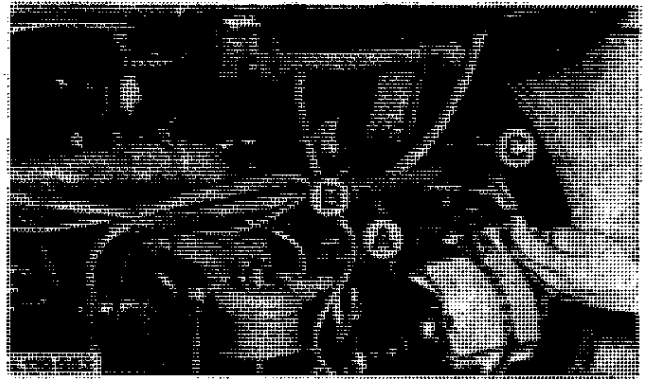
L114922-LB21010AE-010886

CHECKING COMPRESSOR BELT TENSION (Tractors with Air Conditioning System)

Using belt tension gauge JDST-28 (A) check compressor belt tension.

Compressor belt should have 19 mm (3/4 in.) flex with 60 N (13 lb) pull midway between both pulleys.

A—Belt tension gauge
(JDST-28)
B—Adjusting screw
C—Compressor belt



L116652-LB31010AE-010287

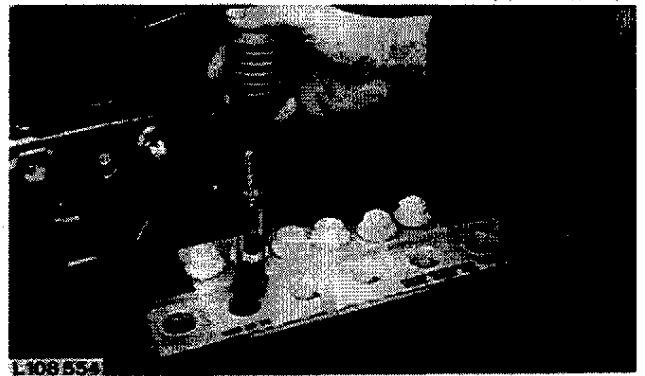
CHECKING BATTERIES

Check battery terminals and battery cable ends and, if necessary, clean and coat them with petroleum jelly.

Check specific gravity of battery cells. At an electrolyte temperature of 20° C (68° F), a fully charged battery should have a specific gravity of 1.28 under normal and arctic conditions and 1.23 in tropical areas.

Check electrolyte level in each battery cell. Add distilled water if necessary to bring level above cell plates.

Charge batteries if they are not fully charged. Remove filler caps before charging the battery.



L108554-LB21010AE-010886

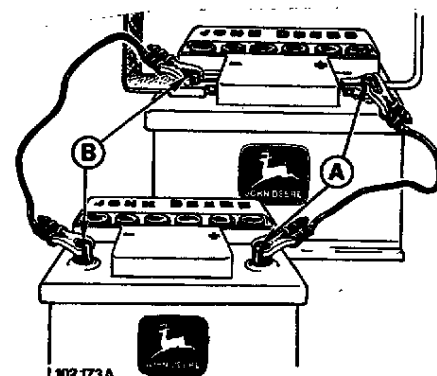
IMPORTANT NOTES

If the engine is to be run for a short time without battery (using a slave battery for starting), do not, under any circumstances, interrupt this circuit by switching off the main switch before stopping the engine by means of the fuel pump shut-off cable. An additional load (lights) must also be switched on. Do not run engine above 1000 rpm. Insulate battery end of disconnected starter cable properly to avoid damage to alternator and regulator.

On tractors equipped with an operator's cab, do NOT connect ground strap of slave battery to cab frame.

Observe proper polarity when connecting batteries and chargers. Improperly connected batteries ("+" and "-") result in immediate destruction of rectifier diodes.

A-Positive terminals
B-Negative terminals



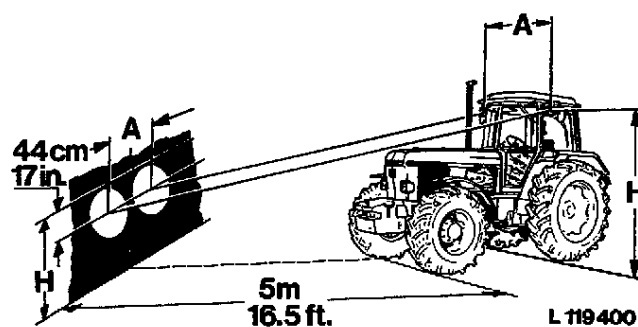
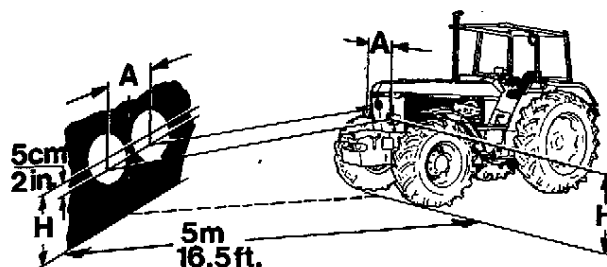
L102173A-LB31010AE-010287

CHECKING LIGHTING SYSTEM

See Operator's Manual.

Check adjustment of headlights and adjust, when necessary.

When equipped, check adjustment of roof headlight and adjust, when necessary.

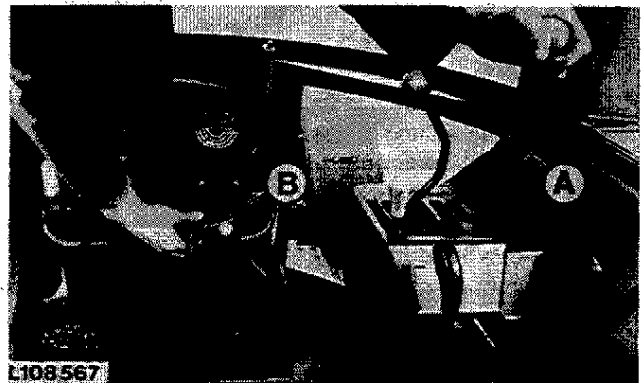


L119400-LB21010AE-010488

CHECKING START SAFETY SWITCH

Operate starter switch (B).

NOTE: Starting motor should turn only with the range shift lever (A) in neutral position.

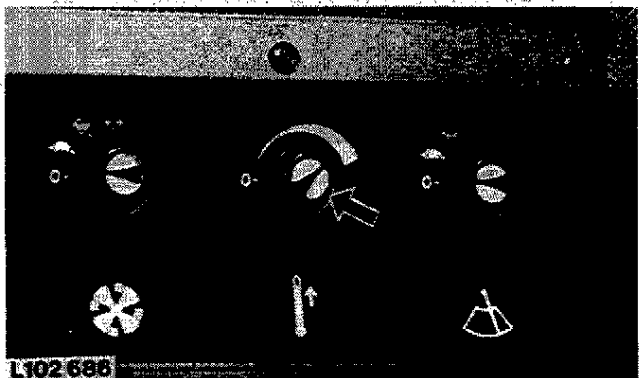


L108567-LB21010AE-010488

CHECKING HEATER CONTROL SWITCH

Tractors With SG2 Cab

With engine running at operating temperature, turn control switch to the right and wait until warm air enters cab through the air louvers.



Tractors With MC1 Cab

With engine running at operating temperature, turn control switch to the right and wait until warm air enters cab through the air louvers.



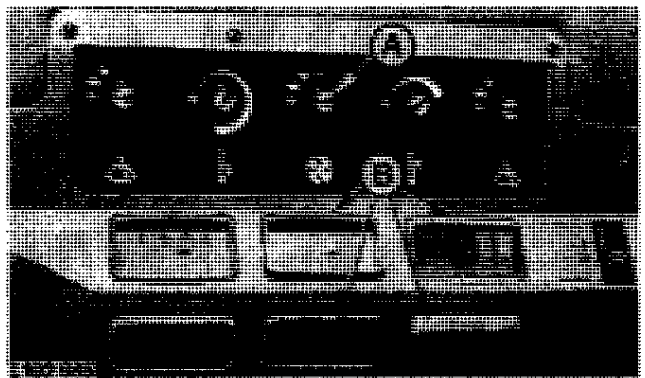
L102686, L115041-LB31010AE-010888

CHECKING FAN SWITCH

Tractors With SG2 Cab

Open air louvers (B).

Check function of three-stage cab ventilation and heater fan switch (A).



L102685-LB31010AE-010287

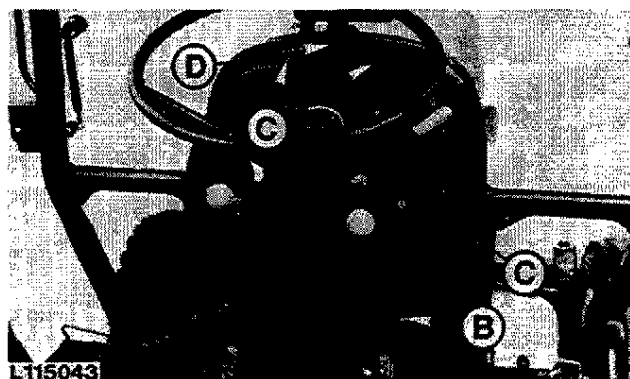
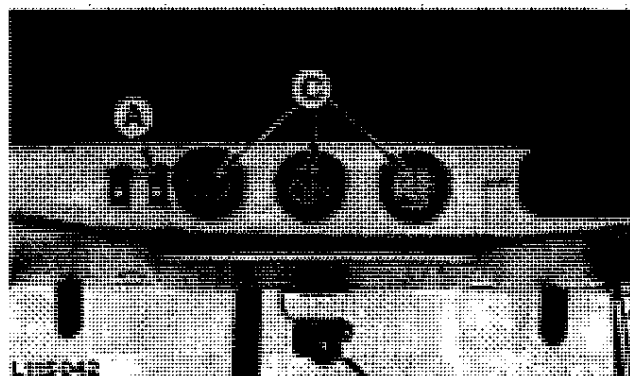
Tractors with MC1 Cab

Open air louvers (C).

Check function of switch (A) for fan in roof and switch (B) for fan in dash.

A-Switch (roof fan)
B-Switch (dash fan)
C-Air louvers
D-Air flow selector switch

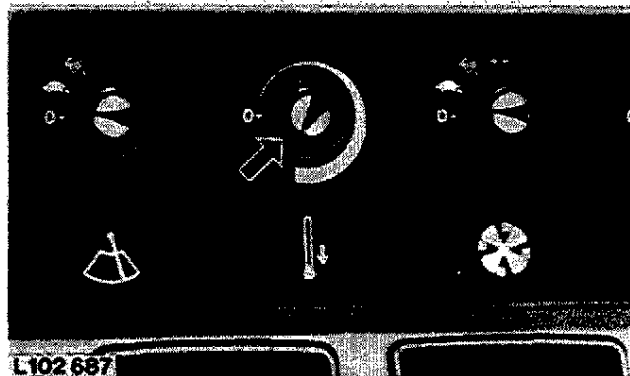
Also check function of air flow selector switch (D). This switch allows to change from fresh air intake to recirculating cab air.



L115042, L115043-LB31010AE-010287

CHECKING THERMOSTAT SWITCH (Tractors with Air Conditioning System)

With fan switched on, turn infinitely adjustable switch to the right and wait until cool air enters cab through the air louvers.



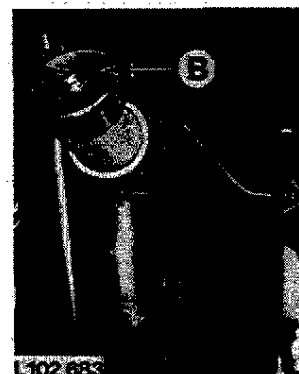
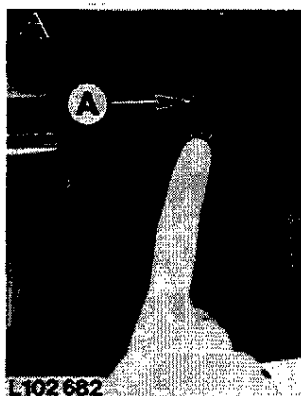
L102687-LB21010AE-010886

CHECKING WINDSHIELD WASHER SYSTEM

Tractors With SG2 Cab

Operate tumbler switch (A) of washer system.

Add a suitable commercially available anti-freeze solution to reservoir (B) if temperature is liable to drop below freezing point.

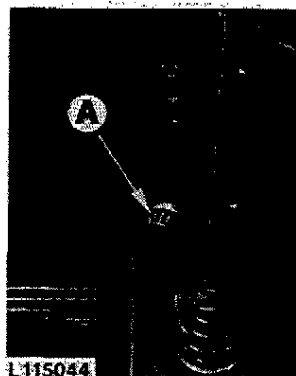


L102682, L102683-LB31010AE-010287

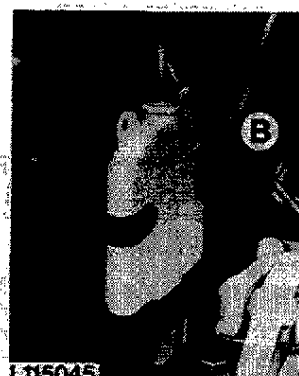
Tractors with MC1 Cab

Operate hand pump (A) of washer system.

Add a suitable commercially available anti-freeze solution to reservoir (B) if temperature is liable to drop below freezing point.



L115044



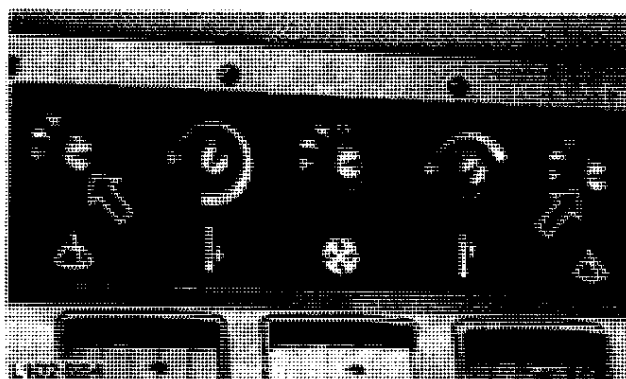
L115045

L115044, L115045-LB31010AE-010287

CHECKING FUNCTION OF WINDSHIELD WIPERS

Tractors With SG2 Cab

Check both windshield wiper speeds by turning both two-speed switches.

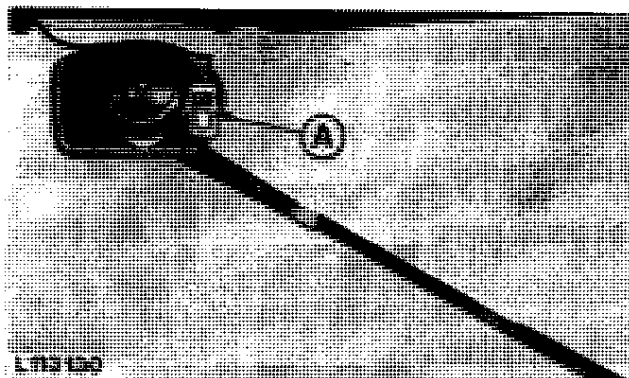


L102684

L102684-LB31010AE-010287

Tractors with MC1 Cab

Check windshield wiper operation by means of tumbler switch (A).



L113130

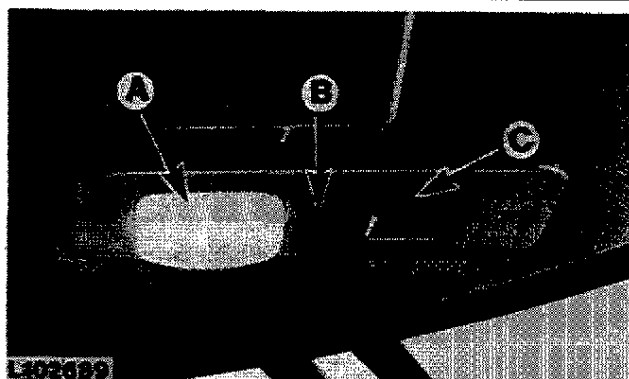
L113130-LB31010AE-010287

CHECKING CAB INTERIOR LIGHTS

Tractors With SG2 Cab

Turn switch (B) to position 1, lamp (A) glows continuously and, in position 2, it glows as long as cab door is open.

Lamp (C) illuminates transmission shift levers as soon as headlights are switched on.

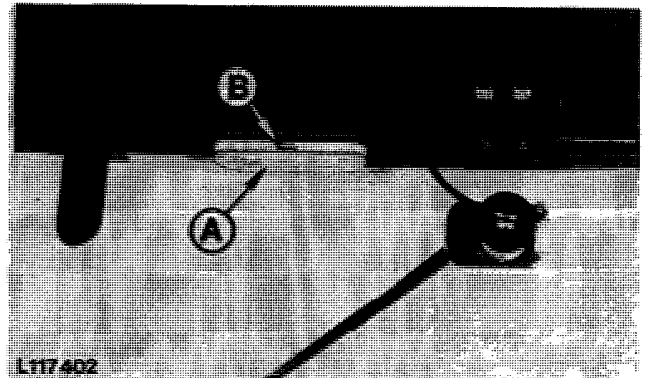


L102689

L102689-LB31010AE-010287

Tractors with MC1 Cab

With switch (B) in right-hand position, lamp (A) should glow continuously.



L117402-LB31010AE-010888

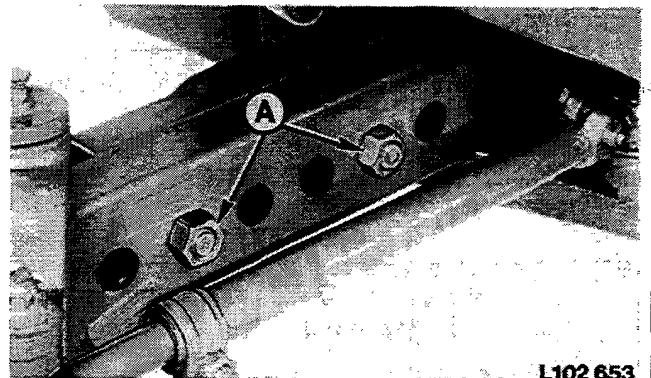
CHECKING INSTRUMENTS AND INDICATOR LIGHTS

See Operator's Manual.

INSPEK-LB21010FE-010886

CHECKING TORQUE OF ADJUSTABLE FRONT AXLE BOLTS (When Equipped)

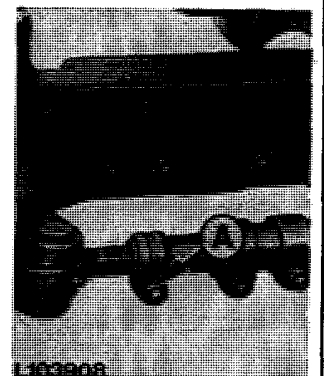
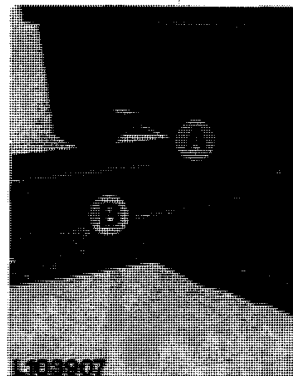
Tighten axle bolts (A) to 400 Nm (300 ft-lb).



L102653-LB31010AE-010287

CHECKING TIE ROD BOLTS (Tractors Without Front Wheel Drive)

Tighten clamping screws (A) to 55 Nm (40 ft-lb) and clamping screw (B) to 90 Nm (65 ft-lb).

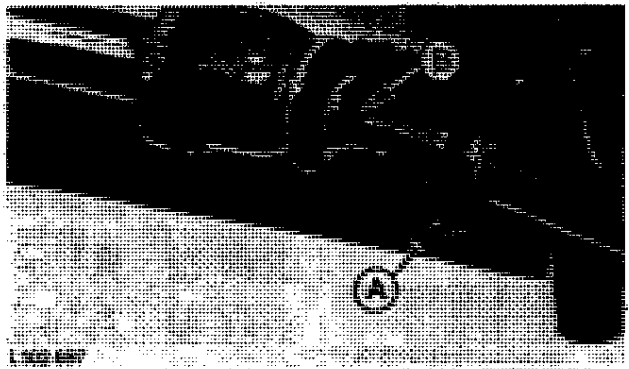


L103907,L103908-LB31010AE-010888

CHECKING TIE ROD BOLTS (Tractors With Front Wheel Drive)

Tighten clamping screw (A) to 55 Nm (40 ft-lb).

A—Clamping screw
B—Threaded rod



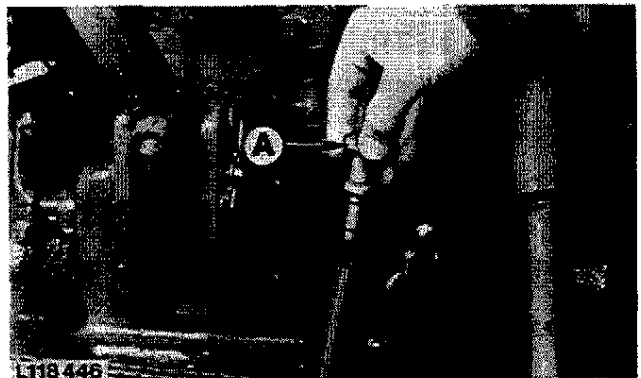
L102697-LB21010AE-010488

CHECKING TRANSMISSION/HYDRAULIC SYSTEM OIL LEVEL

IMPORTANT: Check oil level when oil is cold.

Park tractor on level ground. Completely lower rock-shaft. When equipped, fully lower front hitch. Pull out dipstick (A) and wipe clean. Reinsert dipstick, again pull out and check oil level.

NOTE: If oil level is below top mark, top up with oil through filler neck (B) to bring level up to top mark on dipstick.



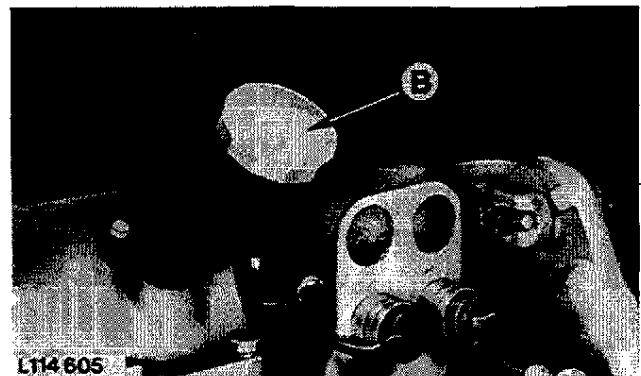
IMPORTANT: After having topped up transmission with oil, wait for a period of five minutes before rechecking oil level with dipstick.

If necessary, add JOHN DEERE Hy-Gard transmission and hydraulic oil or equivalent (see Group 15) to bring oil level to top mark on dipstick.

NOTE: Types of oil not meeting JOHN DEERE specifications will not give satisfactory service and may result in damage.



IMPORTANT: Make sure that transmission oil filter element and oil return flow filter were changed after first 50 hours of operation.

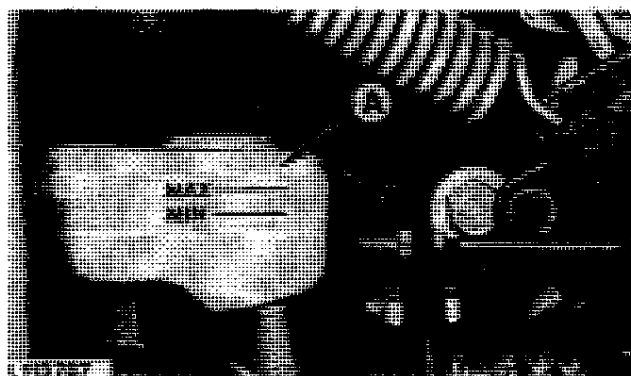


L118446, L113094, L114605-LB31010AE-010888

CHECKING BRAKE FLUID LEVEL (With Hydraulically Operated Clutch)

Level of fluid should be between the marks "MIN" and "MAX". Add brake fluid type FMVSS 116 DOT 4, when necessary.

A-Reservoir



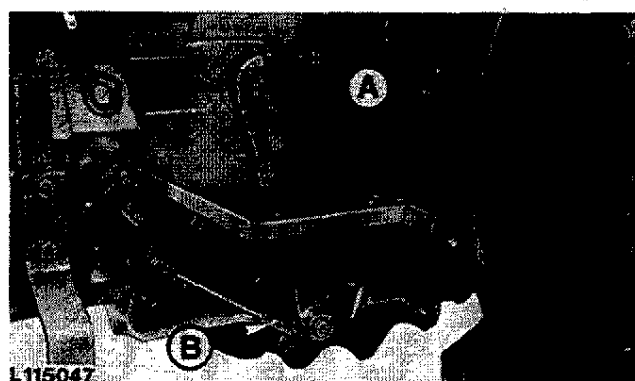
L113787-LB31010AE-010888

CHECKING CLUTCH PEDAL FREE TRAVEL (With Mechanically Operated Clutch)

Clutch pedal free travel (A) should be 25 mm (1 in.).

When necessary, adjust clutch pedal free travel by turning yoke (B).

IMPORTANT: Clutch pedal free travel should never be less than 13 mm (approx. 1/2 in.). Should clutch pedal free travel be less than specified minimum, do not operate tractor until clutch pedal free travel has been adjusted to specifications.

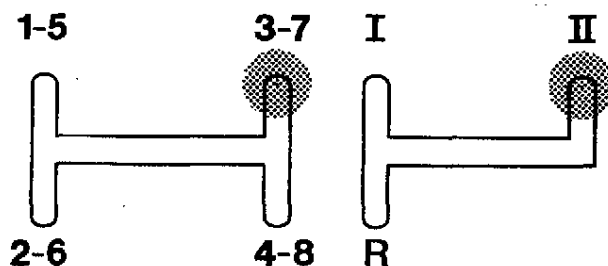


L115047

L115047-LB31010AE-000287

CHECKING TRANSMISSION

Drive tractor on trial run, shifting transmission through all gears. Remedy any defects.



L106 549

L106549-LB31010AE-010287

CHECKING DIFFERENTIAL LOCK

Drive tractor, checking functions of differential lock by operating hand lever (A) or pedal (B).

IMPORTANT: Never turn the tractor with differential lock engaged.



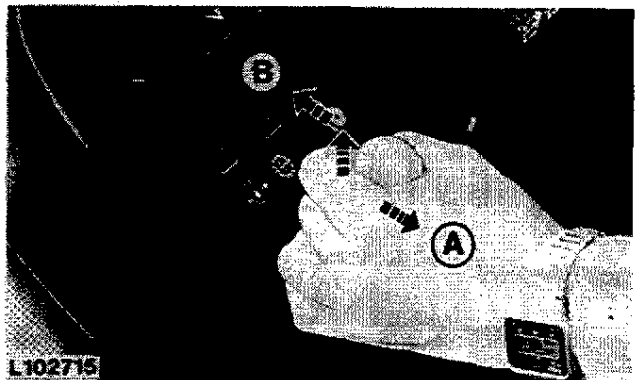
L114575, L32030A-LB31010AE-010287

CHECKING REAR PTO

Run engine.

Tractors With Cab

Raise shift lever and push forward.

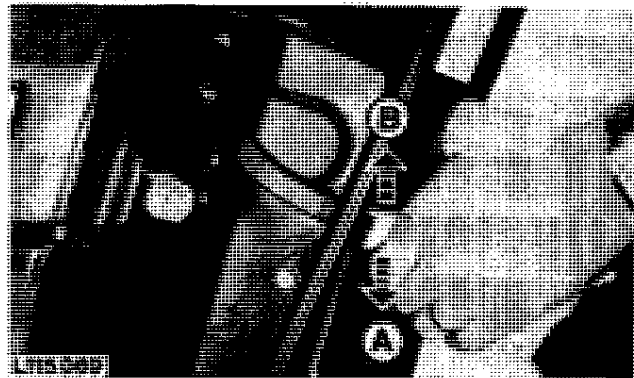


Tractors Without Cab

Up to tractor Serial No. 618 706L: Raise shift lever and push forward.

From tractor Serial No. 618 707L: Raise shift lever.

A-PTO disengaged
B-PTO engaged



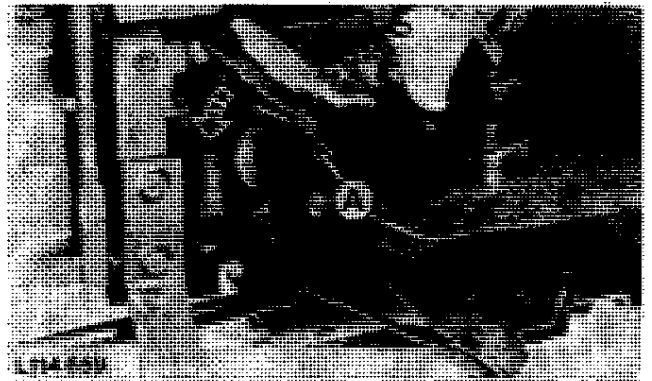
L102715, L115069-LB31010AE-010888

CHECKING CONTINUOUS-RUNNING PTO (Tractors With Collar Shift Transmission)

Engage PTO by means of lever (B) only when clutch pedal (A) is fully depressed.



CAUTION: Never engage PTO with tractor in motion.

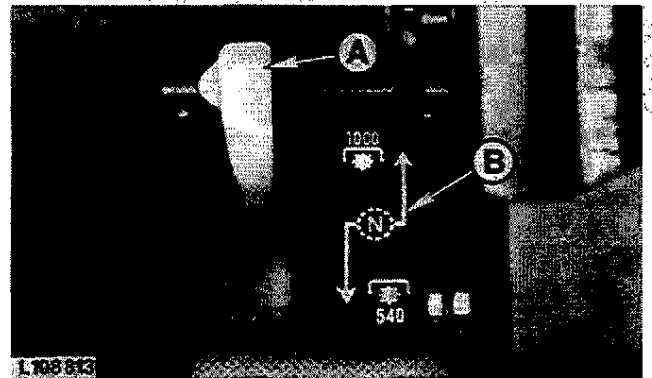


L114659, L115159-LB31010AE-000287

CHECKING PTO SPEED SHIFT LEVER (When Equipped)

With PTO disengaged, check that shift positions of lever (A) correspond to the positions on decal (B).

NOTE: Center position is neutral position.



L108813-LB31010AE-000287

CHECKING FRONT PTO (When Equipped)

With engine shut-off, engage front PTO transmission by means of lever (A).



CAUTION: Engage PTO transmission with engine shut-off only.

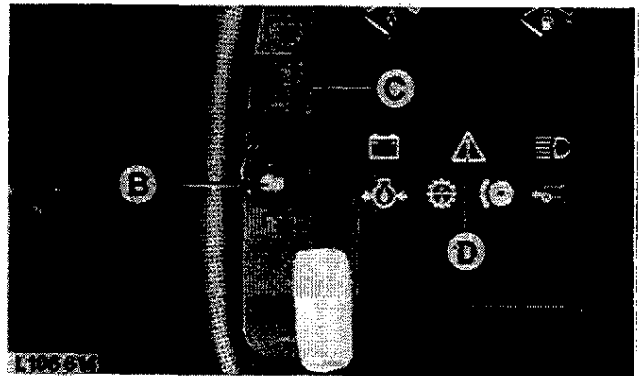
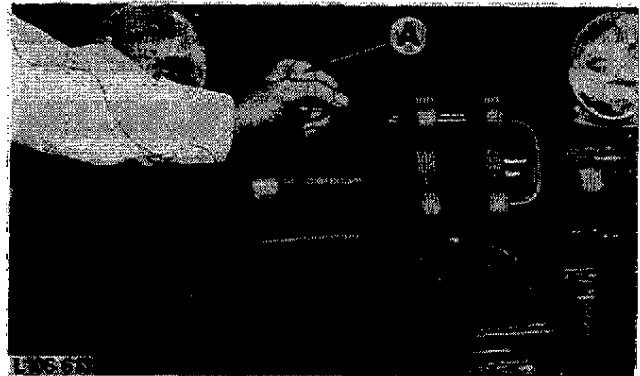
Engage and disengage front PTO clutch with tumbler switch (B) with engine running.

Control light (C) glows when front PTO is engaged.

NOTE: Control light (D) flashes when front PTO has been engaged with tumbler switch (B) before engine has been started.

A-Lever
B-Tumbler switch

C-Control light
D-Control light



L106613, L106614-LB31010AE-010287

CHECKING HI-LO SHIFT UNIT (When Equipped)

Drive tractor and operate Hi-Lo shift unit, i.e. move Hi-Lo shift unit lever to both reduced and normal speed position several times, precisely observing Hi-Lo shift unit operation each time.

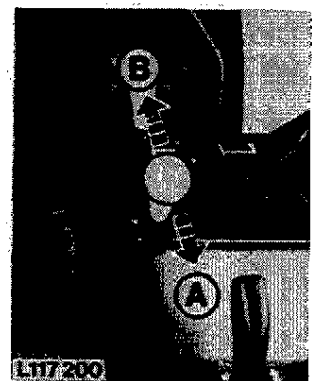
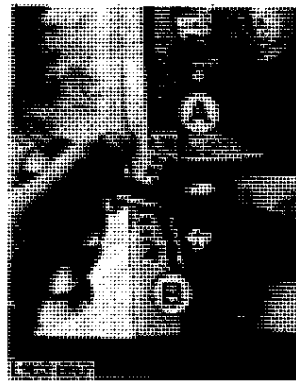
Simulate tractor working under load by applying brakes.

Low oil pressure will be indicated by disk pack slippage, causing the clutch pack to become noisy.

Mechanical failure in the Hi-Lo shift unit will also be indicated by unusual noise.

A-Reduced speed
B-Normal speed

IMPORTANT: On tractors equipped with an SG2 cab, Hi-Lo shift unit cannot be shifted with clutch pedal depressed.

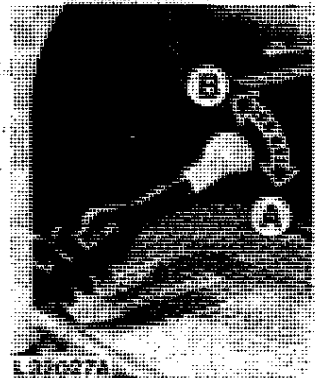
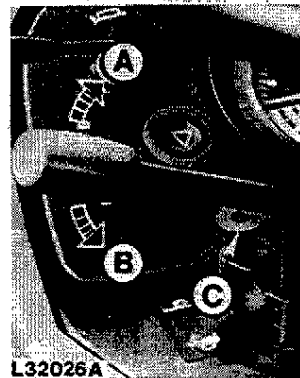


L102667, L117200-LB31010AE-010888

CHECKING CREEPER TRANSMISSION (When Equipped)

IMPORTANT: Engage creeper transmission only in I
(Low) or reverse range and with clutch
pedal depressed.

A-Reduced speed
B-Normal speed
C-Control lever lock



L 14797A

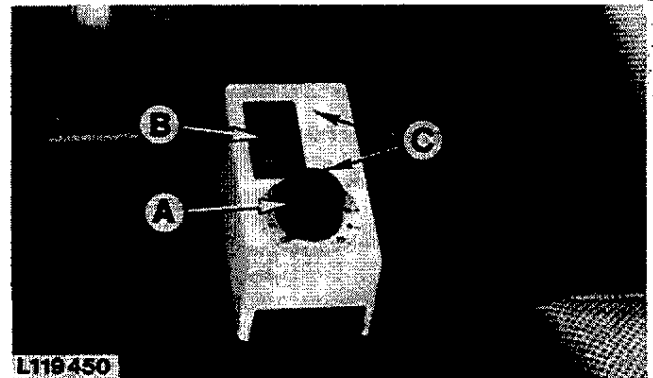
L32026A, L32027A, L14797A-LB31010AE-000287

CHECKING HYDROSTATIC CREEPER TRANSMISSION (When Equipped)

IMPORTANT: Engage creeper transmission only with
range shift lever in neutral and front-
wheel drive engaged.

A-Rotary switch for engaged,
disengaged and ground travel
speed

B-Switch for travel direction
C-Indicator lights for travel
direction



L119450-LB31010AE-010888

CHANGING FRONT WHEEL DRIVE AXLE OIL (When Equipped)

NOTE: Only change oil directly after having operated tractor for some time.

Fill with an EP transmission oil as specified in Group 15 of this section.

Front Axle Housing

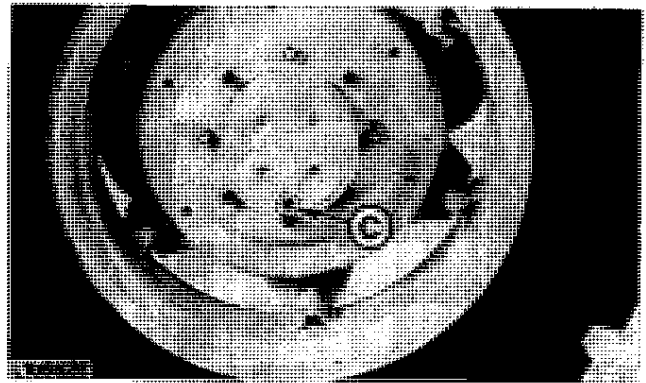
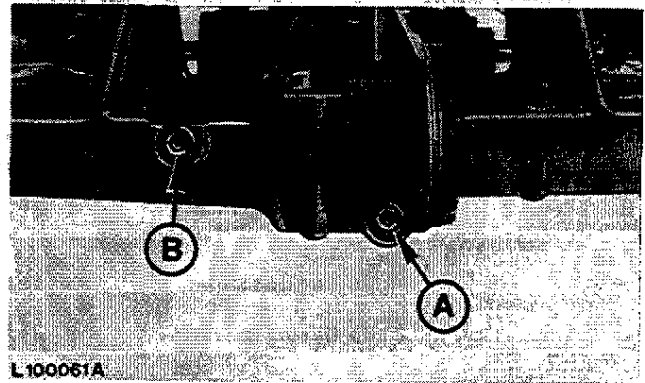
Capacity:
– 5.3 liters (1.4 U.S. gal.)

Wheel Hub Housing

After draining oil, turn wheel until oil level mark is horizontal.

Capacity (Each):
– 0.75 liters (0.2 U.S. gal.)

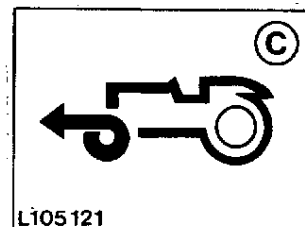
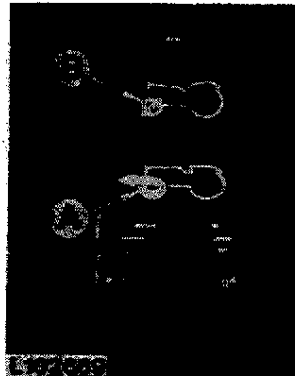
A—Drain plug
B—Level plug
C—Drain and level plug



CHECKING FUNCTION OF FRONT WHEEL DRIVE (Tractors With Front Wheel Drive)

Drive tractor, engaging and disengaging front wheel drive by operating tumbler switch.

A—Front wheel drive engaged
B—Front wheel drive disengaged
C—Control light glows when front wheel drive is engaged

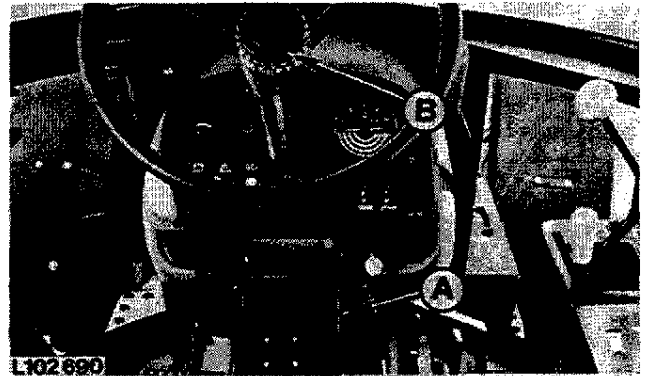


L102689, L105121-LB21010AE-010886

CHECKING HYDROSTATIC STEERING SYSTEM

Start engine and turn steering wheel to left and right.

A-Steering wheel tilt adjustment
B-Steering wheel height adjustment



A-Steering wheel tilt adjustment



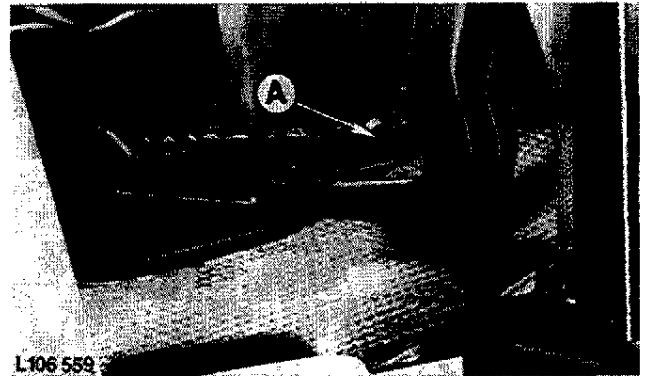
L102690, L113774-LB21010AE-010886

CHECKING FUNCTION OF FOOT BRAKES

Load each brake pedal with 270 N (60 lb) for one minute. Loaded pedal should drop approx. 25 mm (1 in.) only during this time.

NOTE: Do not check both brake pedals simultaneously, but each pedal individually.

A-Pedal coupler



L106559, L114574-LB31010AE-010287

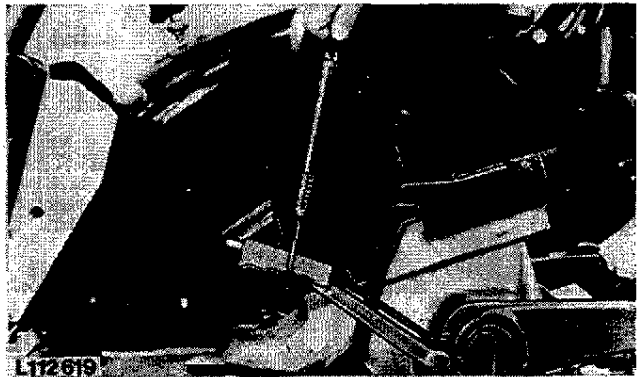
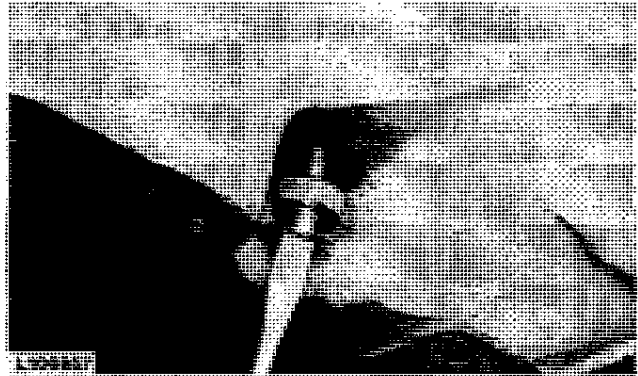
CHECKING HANDBRAKE ADJUSTMENT

Tighten brake band support screw on underside of transmission case hand-tight, then back of half-a-turn and lock in position by means of hex. nut.

NOTE: The brake band support screw is backed off two turns at the factory. After approximately 100 hours of operation, tighten support screw hand-tight and back off half-a-turn.

Pull handbrake lever to third or fourth notch with a force of 110 N (25 lb).

When necessary, adjust handbrake (see Section 60, Group 30).

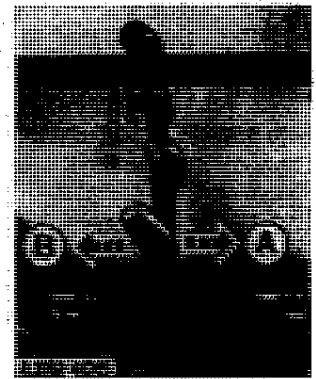


L106957, L112619-LB31010AE-010888

CHECKING ROCKSHAFT FUNCTIONS

See Operator's Manual.

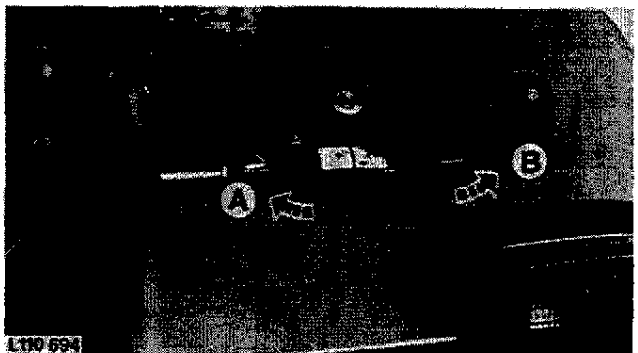
A—Raise implement
B—Lower implement



CHECKING FUNCTION OF ROCKSHAFT REMOTE CONTROL (When Equipped)

IMPORTANT: Operating rockshaft with the remote control is only effective with rockshaft selector lever in "MIN" position.

A—Lower rockshaft
B—Raise rockshaft

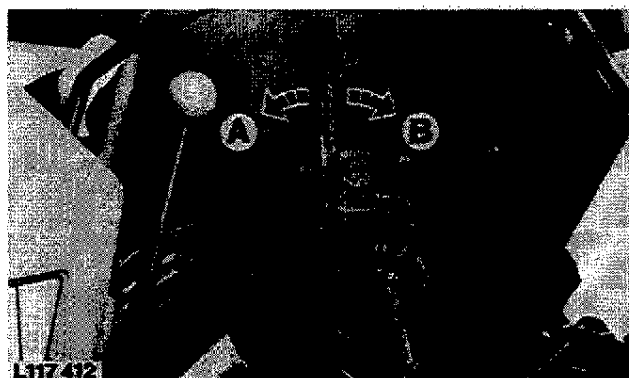


L110694-LB31010AE-010888

CHECKING FUNCTION OF SELECTIVE CONTROL VALVES

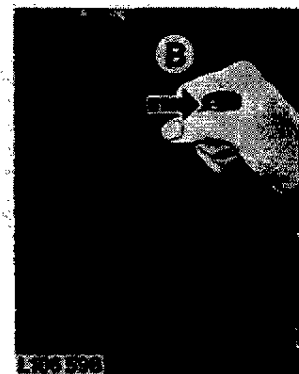
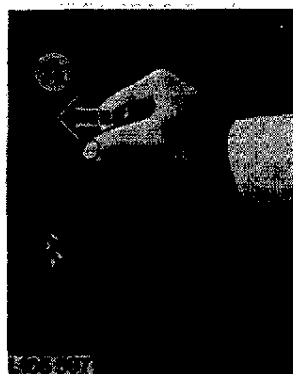
Tractors Without Cab

Connecting rods must be adjusted so that distance of control lever travel for complete lifting (B) and lowering (A) is the same.



Tractors With SG2 Cab

Connecting rods must be adjusted so that distance of control lever travel for complete lifting (B) and lowering (A) is the same.



L117412, L106596, L106597 - LB31010AE-010888

LUBRICATING TRACTOR

Lubricate all points which must be lubricated after 100 hours of operation, as described in group 15 of this section. Use JOHN DEERE EP multipurpose grease or an SAE EP multipurpose grease.

INSPEK-LB21010IG-010886

CHECKING GUARDS FOR PROPER INSTALLATION

See Operator's Manual.

INSPEK-LA71010JE-091184

CHECKING HYDRAULIC SYSTEM FOR LEAKS

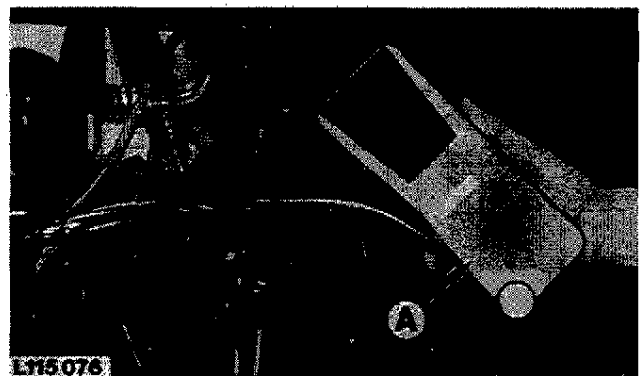
Repair leaks, when necessary.

INSPEK-LA71010GE-091184

CHECKING AIR CONDITIONING SYSTEM REFRIGERANT LINES FOR LEAKS

A—Leak tester FKM10001-5 is part of tester FKM10001

See Section 90, Group 06, in the event of malfunctions.



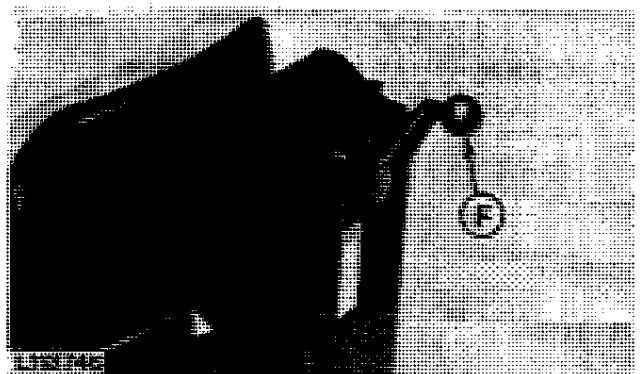
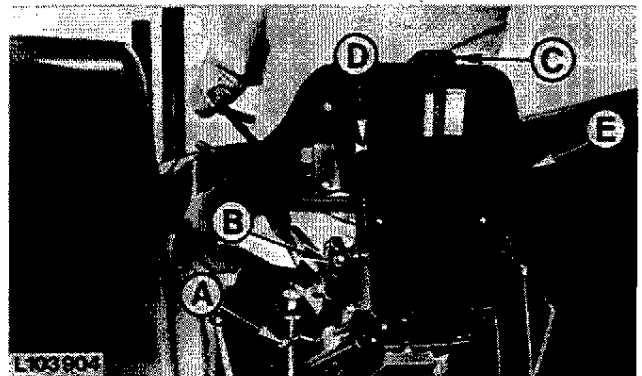
L115078-LB31010AE-010888

CHECKING FUNCTIONS OF OPERATOR'S SEAT

DE LUXE SEAT

A—Catch for horizontal adjustment
B—Handwheel for height adjustment
C—Handwheel for seat adjustment according to operator's weight
(arrows (D) must be in line when operator is seated)
E—Release button for seat safety belt
F—Crank handle for height adjustment

Certain seat versions have a crank handle (F) instead of the handwheel (B).



L103904,L113748-LB21010AE-010886

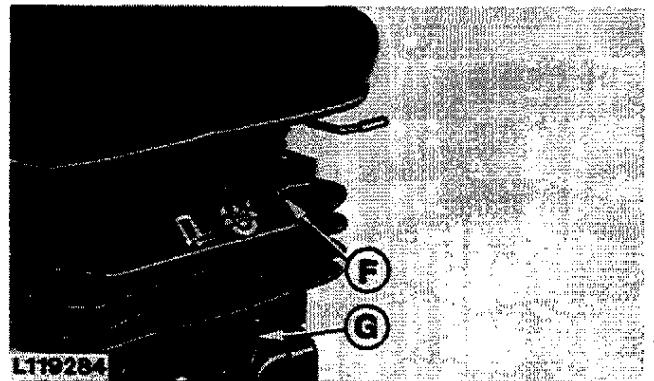
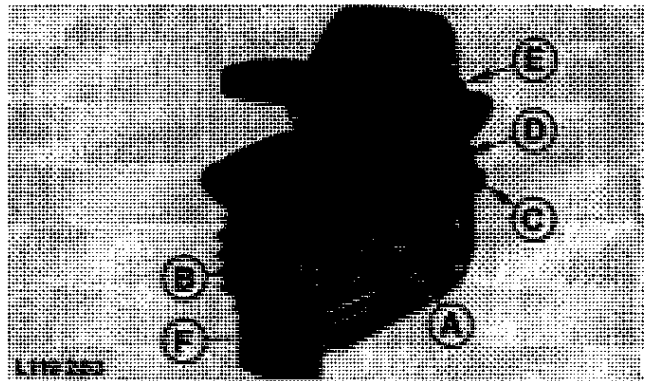
SUPER DE LUXE SEAT

- | | |
|---|---|
| A—Handle for electro-pneumatic weight and height adjustment | E—Lumbar support adjustment |
| B—Length adjustment | F—Lever for horizontal movement |
| C—Back rest adjustment | G—Hand wheel for mechanical weight adjustment |
| D—Arm rest height adjustment | |

With electro-pneumatic weight and height adjustment, pull up handle (A) to adjust for operator's weight. To raise seat, pull up handle and push to the rear. To lower seat, pull up handle and pull to the front.

With mechanical seat height adjustment, to raise seat lift seat up until it is locked in position (a click must be heard). To lower seat, raise seat to stop and then lower to the desired position. With mechanical weight adjustment, turn hand wheel (G) as required.

On seat versions for tractors up to 40 km/h (25 mph), lever (F) permits horizontal movement of the seat.



L119283, L119284-LB21010AE-010488

STANDARD SEAT

Adjust for operator's weight as for De Luxe seat.

- A—Attaching screws
(for horizontal adjustment)



L115049-LB31010AE-010287

CHECKING SG2 CAB FOR CORRECT INSTALLATION

Check cap screws and hex. nuts for specified torque of 200 Nm (145 ft-lb).



L114611-LB31010AE-010287

CHECKING MC1 CAB FOR CORRECT INSTALLATION

Check cap screws and hex. nuts for specified torque of 245 Nm (180 ft-lb).

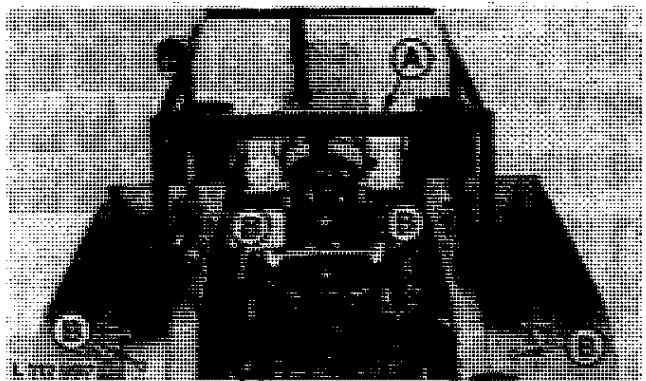


L115050-LB31010AE-010287

CHECKING FOUR-POST ROLL GUARD FOR CORRECT INSTALLATION

Check cap screws (B) for specified torque of 120 Nm (85 ft-lb).

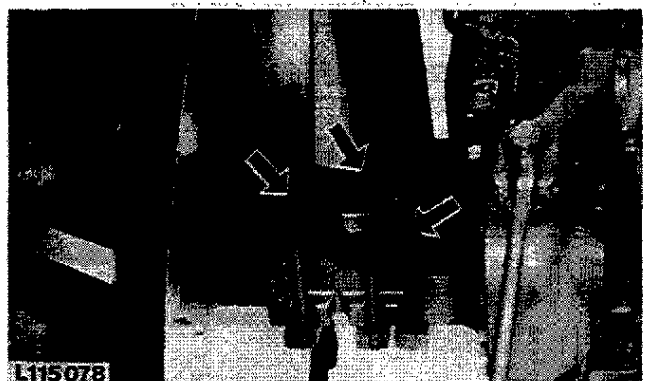
A—Roll guard
B—Cap screws



L112997-LB31010AE-010287

CHECKING TWO-POST ROLL GUARD FOR CORRECT INSTALLATION

Check cap screws and hex. nuts for specified torque of 230 Nm (170 ft-lb).

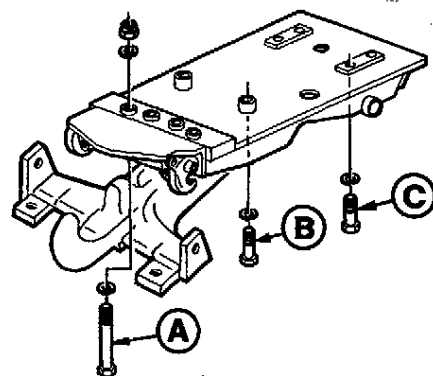


L115077,L115078-LB41010AE-010687

CHECKING TORQUES OF ATTACHING SCREWS (Tractors with "Axla" Pickup Trailer Hitch)

Earlier Type

Retighten screws (A) to 135 Nm (100 ft-lb), screws (B) to 160 Nm (120 ft-lb) and screws (C) to 120 Nm (85 ft-lb).

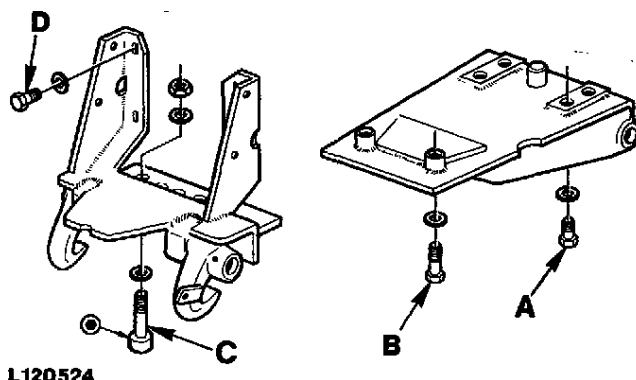


L120539

L120539-LB31010AE-010888

Later Type

Retighten screws (A) to 135 Nm (100 ft-lb), screws (B and D) to 120 Nm (85 ft-lb) and screws (C) to 160 Nm (120 ft-lb).

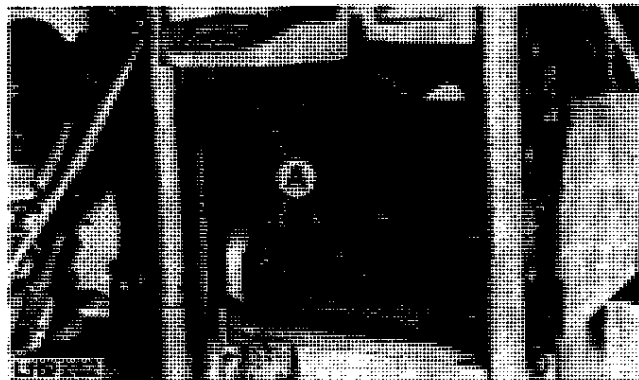


L120524

L120524-LB31010AE-010888

CHECKING TORQUES OF ATTACHING SCREWS (Tractors with Height-Adjustable Trailer Hitch)

A-500 Nm (370 ft-lb)



L119262-LB31010AE-010888

SPECIFICATIONS

CAPACITIES AND SERVICE INTERVALS

Engine Crankcase:

- Initial filling 10.5 liters (2.8 U.S. gal.)
- Change crankcase oil
and replace filter 10.0 liters (2.6 U.S. gal.)

Check crankcase oil level every 10 hours

Oil change every 200 hours*

Filter change every 200 hours*

Fuel filter

Check fuel filter every 10 hours

Fuel filter

Replace fuel filter every 500 hours

Cooling system 13.0 liters (3.4 U.S. gal.)

Change coolant every two years

- With SG2 or MC1 cab

(with heater) 15.0 liters (4.0 U.S. gal.)

Change coolant every two years

Transmission/Hydraulic System

(including oil reservoir and oil cooler):

- Initial filling (synchronized transmission)
- Without FWD 50.0 liters (13.2 U.S. gal.)
- With FWD 53.0 liters (14.0 U.S. gal.)
- With front PTO 55.0 liters (14.5 U.S. gal.)
- With hydrostatic creeper transmission
an additional 2.0 liters (0.53 U.S. gal.)
- Oil change and replace filter
- Without FWD 47.5 liters (12.5 U.S. gal.)
- With FWD 50.5 liters (13.3 U.S. gal.)
- With front PTO 52.5 liters (13.90 U.S. gal.)
- With hydrostatic creeper transmission
an additional 2.0 liters (0.53 U.S. gal.)

Check oil level every 50 hours

Change transmission filter every 500 hours**

Change transmission oil every 1000 hours

Every 1000 hours clean hydraulic pump filter screen

- Initial filling (collar shift transmission)

- 2250 and 2450 41.0 liters (10.8 U.S. gal.)

- 2650 46.0 liters (12.2 U.S. gal.)

- Oil change and replace filter

- 2250 and 2450 33.0 liters (8.7 U.S. gal.)

- 2650 38.0 liters (10.0 U.S. gal.)

- With heavy-duty final drives

an additional 5.0 liters (1.3 U.S. gal.)

Front Wheel Drive

Axle housing

- 2250 to 2850 5.3 liters (1.4 U.S. gal.)

- 2650N 3.25 liters (0.86 U.S. gal.)

Wheel hub housing

(each) 0.75 liters (0.2 U.S. gal.)

Check oil level every 100 hours

Change oil every 1000 hours***

Clutch Operating System

(Tractors with hydraulically operated

clutch) 250 cm³ (8.75 fl. oz.)

Change brake fluid every two years

* Replace crankcase filter element and change engine oil after first 100 and 200 hours of operation. Thereafter replace filter element and change engine oil after every 200 hours of operation.

** Replace transmission/hydraulic filter element after first 50 hours of operation, after first 500 and thereafter every 500 hours of operation.

*** On tractors with front wheel drive, first oil change after 100 hours of operation. Thereafter every 1000 hours of operation.

WART-LB31015AE-010888

LUBRICANTS AND SERVICE INTERVALS

Clutch throw-out bearing	High temperature John Deere EP multipurpose grease	Lubricate every 100 hours with three strokes of grease gun
Front wheel bearings	John Deere EP multi- purpose grease or SAE EP multipurpose grease	Every 1000 hours Clean and pack with grease
Lube fittings	John Deere EP multipurpose grease or SAE EP multipurpose grease	
Front axle and front wheel bearings		If required*, lubricate every 10 hours, otherwise every 50 hours
- Front wheel drive axle, - Oscillating support, - Front axle carrier and - Universal-jointed drive shaft		If required*, lubricate every 10 hours, otherwise every 50 hours
- Rear axle bearings		If required*, lubricate every 10 hours, otherwise every 500 hours
- Three-point hitch		Lubricate every 200 hours
- Front hitch		Lubricate every 200 hours
- Front PTO drive shaft		Lubricate every 200 hours

* When operating in wet and muddy conditions

WART-LB21015BE-010886

GENERAL

Regular and effective lubrication and servicing are primarily responsible for continual operability and long service life of the tractor. Use only lubricants specified in this section.

Refer to the Operator's Manual for detailed lubricating and servicing instructions. It is absolutely necessary to convince the customer of the need to comply with these recommendations.

NOTE: When changing oil, assume the lowest expected outdoor temperature in respect of oil viscosity during the period up to the next oil change.

WART-LB21015CE-010886

DIESEL ENGINE OIL

Use oil viscosity based on the expected air temperature range during the period between oil changes.

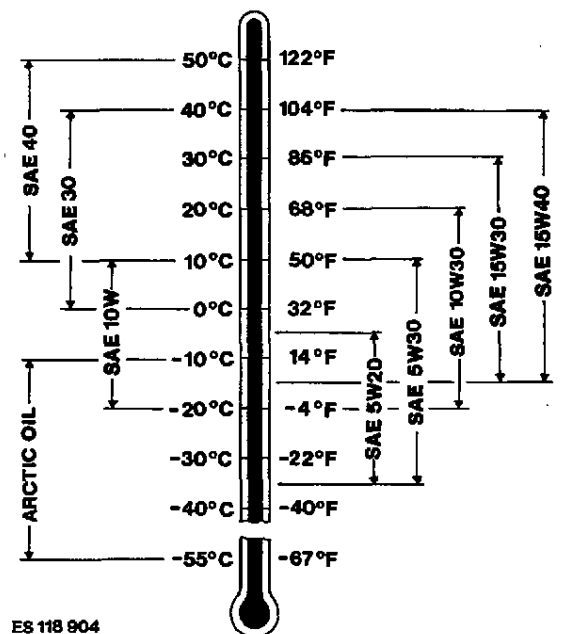
The following oils are preferred:

JOHN DEERE ENGINE OIL
JOHN DEERE UNIVERSAL OIL
JOHN DEERE TORQ-GARD SUPREME® or PLUS 50

Other oils may be used if they meet one or more of the following:

- API Service Classification CE or CD
- Military Specification MIL-L-2104D or MIL-L-2104C
- CCMC Specification D3

SAE 5W20, SAE 5W30 and arctic oil viscosity grades meeting API Service Classification CC may be used (for arctic oils also MIL-L-46167A), but oil and filter must be changed at one-half the normal interval. Higher oil consumption may be expected.



ES 118 904

ES118904-ESPDAE-141288

TRANSMISSION/HYDRAULIC OIL

Use oil viscosity based on the expected air temperature range during the period between oil changes.

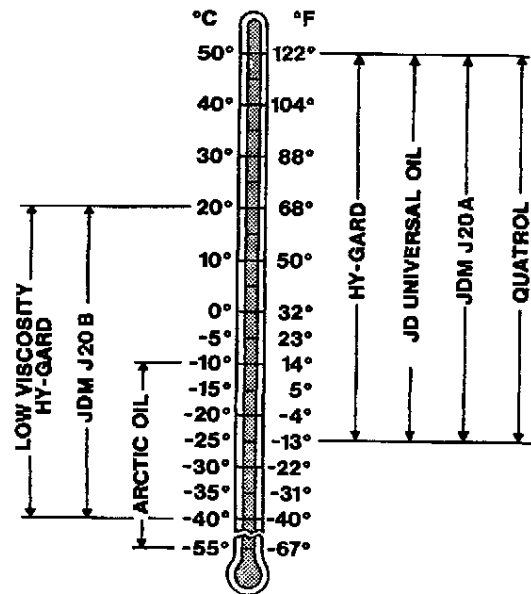
The following oils are preferred:

JOHN DEERE HY-GARD® Transmission and Hydraulic Oil
JOHN DEERE UNIVERSAL OIL

Other oils may be used if they meet one or more of the following:

- John Deere Specification JDM J20A
- John Deere Specification JDM J20B
- QUATROL®

For temperatures below -40°C (-40°F) oils meeting Military Specification MIL-L-46167A should be used.



ES 118 876

ES118876-ESPD AE-141288

FRONT WHEEL DRIVE AXLE OIL

Use oil viscosity based on the expected air temperature range during the period between oil changes.

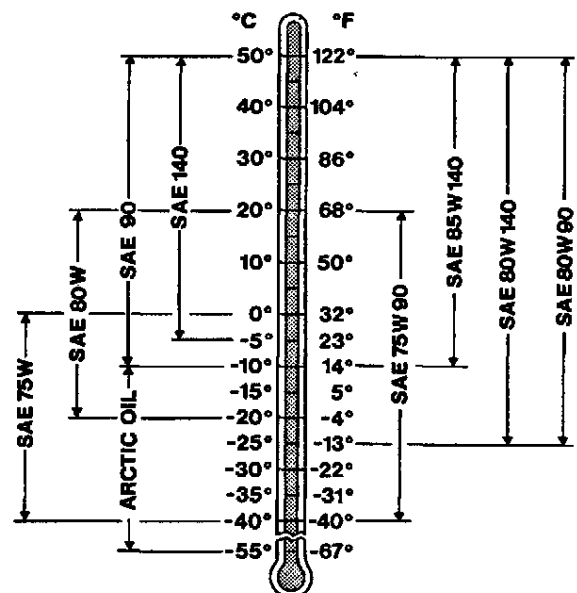
The following oils are preferred:

JOHN DEERE EP OIL 85W-140
JOHN DEERE GL-5 LUBRICANT

Other oils may be used if they meet one or more of the following:

- API Service Classification GL-5
- Military Specification MIL-L-2105D
- Military Specification MIL-L-2105C
- Military Specification MIL-L-2105B

At temperatures below -40°C (-40°F) oils meeting Military Specification MIL-L-46167A should be used.



ES 118 877

ES118877-ESPD AE-010489

EP MULTIPURPOSE GREASE

Use grease based on the expected air temperature range during the service interval.

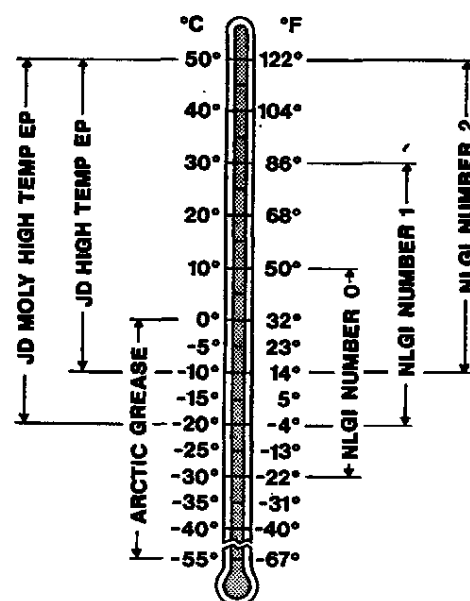
The following greases are preferred:

- JOHN DEERE MOLY HIGH TEMPERATURE EP GREASE
- JOHN DEERE HIGH TEMPERATURE EP GREASE

Other greases may be used if they meet one or more of the following:

- SAE Multipurpose Grease
with 3 to 5% molybdenum disulfide
- SAE EP Multipurpose Grease

Grease meeting Military Specification MIL-G-10924 may be used as arctic grease.



ES 118878

ES118878-ESPD AE-141298

STORING LUBRICANTS

Your tractor can operate at top efficiency only if clean lubricants are used. Therefore, use clean containers to handle all lubricants and store them in an area protected from dust and moisture.

BETOM-1640DLE-070483

BRAKE FLUID FOR HYDRAULICALLY OPERATED CLUTCH

Brake fluid complying with standard DOT4 (FMVSS No. 116) must be used for the clutch operating system.



CAUTION: When handling brake fluid, make sure that no brake fluid comes into contact with tractor parts. Brake fluid is aggressive and damages paintwork.



L 108 561

L108561-LB31015AE-010287

ENGINE COOLANT

The cooling system is filled with JOHN DEERE Engine Cooling Fluid at the factory. It protects the engine against corrosion and against frost down to -36°C (-35°F).

IMPORTANT: Use only JOHN DEERE Engine Cooling Fluid in the cooling system, independent of the season. Drain system and refill with fresh coolant every two years.

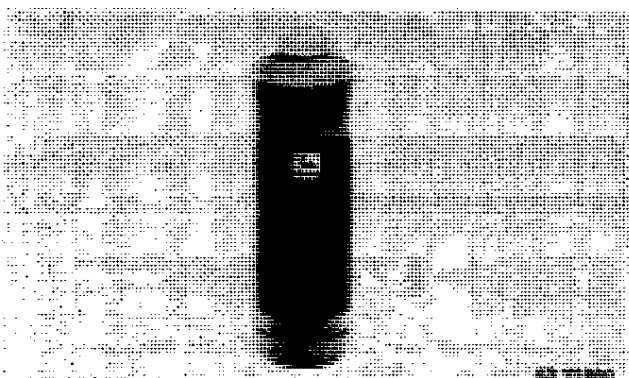
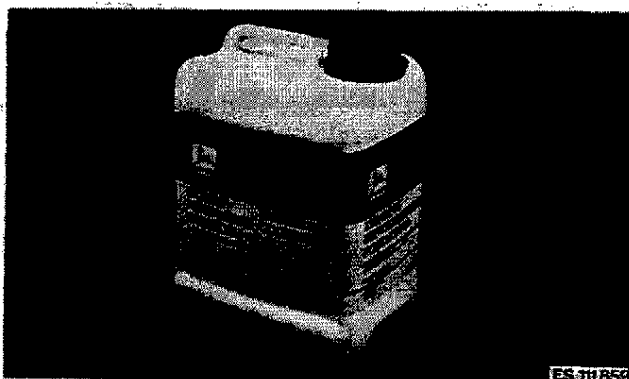
If no JOHN DEERE Engine Cooling Fluid is available, use a mixture of 50% ethylene-glycol antifreeze/corrosion inhibitor and 50% clear, soft water. This mixture also provides protection against corrosion and against frost down to -36°C (-35°F).

Never use any cooling system sealing additives.

Operating under Tropical Conditions

If JOHN DEERE Engine Cooling Fluid or Antifreeze is not available, use the following mixture when refilling the cooling system: Use clean soft water and add 3% JOHN DEERE Engine Coolant Conditioner RE23182 (30 ml per liter of water).

IMPORTANT: Drain system and refill with fresh coolant mixture every year.
This coolant mixture protects the system against corrosion, but not against frost.



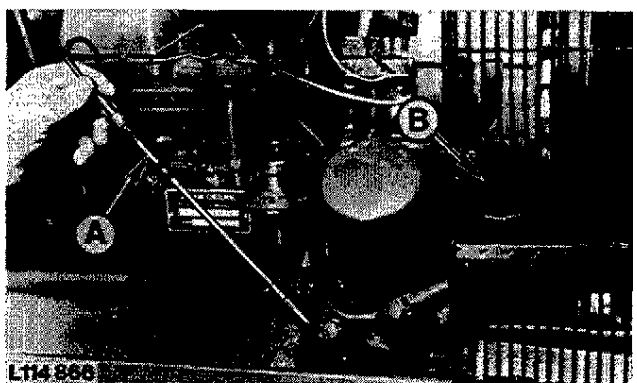
ES111859, ES111860-ESPD1E-010886

CHECKING ENGINE OIL LEVEL

If necessary, add oil until oil level reaches top mark on dipstick. Use JOHN DEERE TORQ-GARD SUPREME engine oil SAE 10W-20 or its equivalent.

A—Dipstick
B—Filler neck

Service interval: Predelivery and every 10 hours.



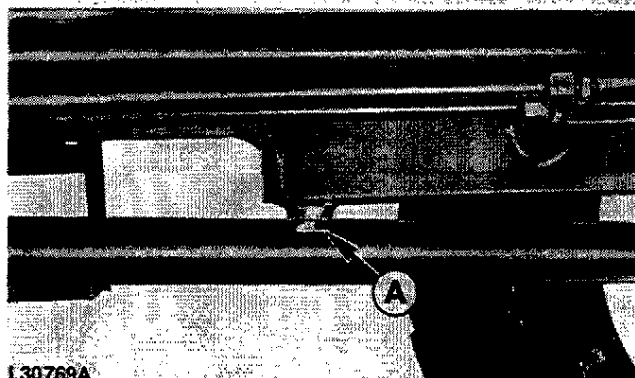
L114 866

L114866-LB21015AE-000886

CHANGING ENGINE OIL

NOTE: Drain oil with engine shut off, but still warm.

A—Drain plug



L30769A

L30769A-LB31015AE-010287

Pour in fresh oil of correct viscosity (see page 3).

Capacity with filter change: 10.0 liters (2.6 U.S. gal.)

B—Filler neck

Service interval: After the first 100 and 200 operating hours, then every 200 hours.



L112614

L112614-LB31015AE-010287

CHANGING ENGINE OIL FILTER

Remove oil filter (A) and clean filter mounting surface (B).

Use original JOHN DEERE filters only!

Apply a thin film of oil to seal ring (C) of new filter. Tighten filter element until seal ring touches mounting surface, then turn an additional 1/2 to 3/4 turns. Do not overtighten!

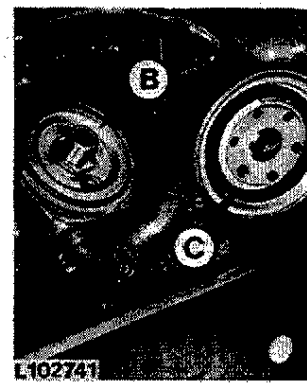
Start engine and check drain plug and filter seat for leaks. Shut off engine and recheck oil level.

Service interval: After the first two 100 operating hours and then every 200 hours.

A—Oil filter
B—Mounting surface
C—Seal ring



L102740



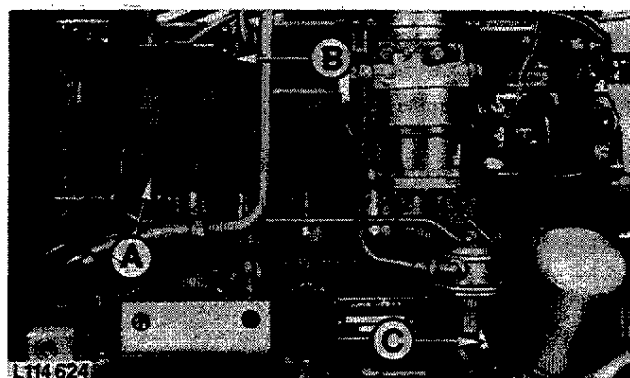
L102741

L102740,L102741-LB31015AE-010287

CHECKING FUEL FILTER FOR WATER AND SEDIMENT DEPOSITS

- A—Drain plug
- B—Bleed screw
- C—Primer lever

Service interval: Predelivery and every 10 hours.



L114624-LB31015AE-010287

REPLACING FUEL FILTER

Disengage fuel filter retaining spring (A) and remove filter (B).

- A—Retaining spring
- B—Fuel filter
- C—Bleed screw
- D—Primer lever

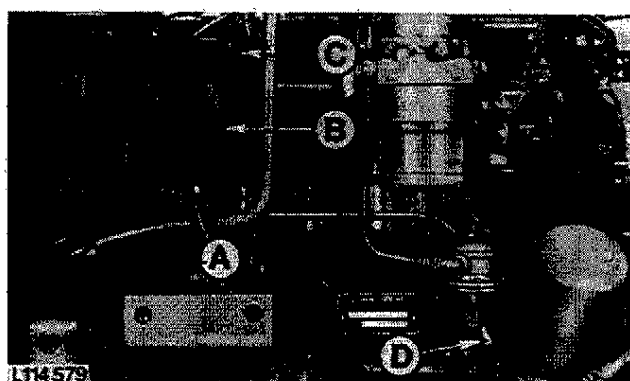
Place new filter against filter body and reattach retaining spring.

Loosen bleed screw (C).

Pump fuel transfer pump primer lever (D) until fuel flows out of bleed screw free from air bubbles. Tighten bleed screw.

NOTE: If the primer lever will not pump fuel and no resistance is felt at upper end of stroke, then turn engine with starting motor to change position of cam on camshaft. When bleeding is completed make sure that primer lever is at lowest point of its stroke.

Service interval: Every 1000 hours.



L114579-LB31015AE-000287

REPLACING COOLANT



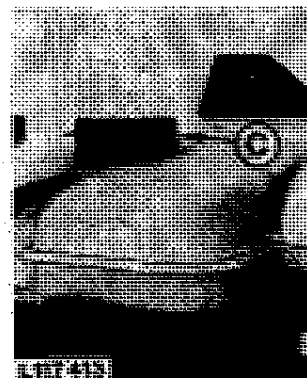
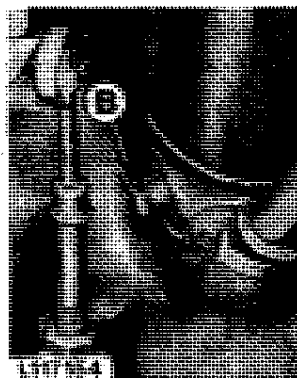
CAUTION: Do not remove the radiator or expansion tank filler cap before coolant temperature is below its boiling point. Slightly loosen cap to stop, so relieving pressure before removing cap completely.

Open radiator drain tap (A).
Remove drain plug (B) from engine oil cooler.
Remove radiator or expansion tank filler cap (C).
When equipped, turn cab heating control completely to the right.

Once coolant has drained, close drain tap, screw in drain plug and fill system with clear water.

Start engine and run to operating temperature. Shut off engine and again drain cooling system.

Again close drain tap, screw in drain plug and fill system with a commercial radiator cleaning solution.



L115052, L117413, L117154-LB31015AE-010888

Drain system and fill again with clear water, start engine and run again to operating temperature. Shut off engine and again drain the system.

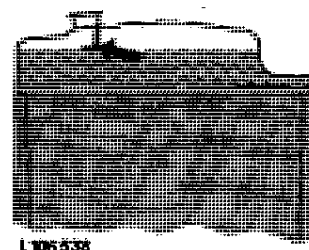
Close drain tap, screw in drain plug and fill system with specified coolant (see under "Engine Coolant").

After filling, run engine until it reaches operating temperature. This will allow thermostat to open and will ensure that coolant is circulated through the entire cooling system.

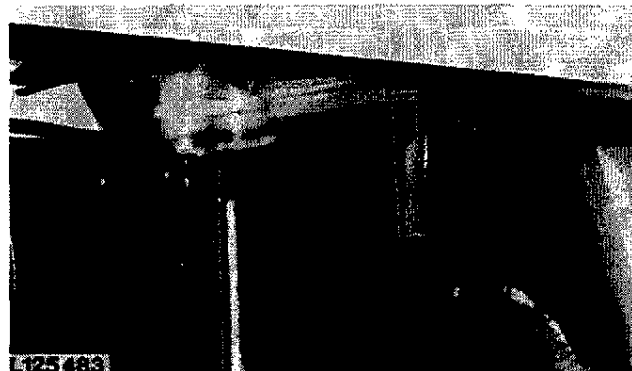
Recheck level of coolant. This must reach up to level of marking plate (see arrow), and not higher. On tractors with expansion tank coolant level should not be below mark "MIN".

NOTE: For efficient cooling, exterior of radiator must also be kept clean. Remove any dust or oil and carefully straighten any bent fins.

Service interval: Every two years.



L106538



L125483

L106538, L125483-LB31015AE-010888

CHECKING TRANSMISSION/HYDRAULIC SYSTEM OIL LEVEL

IMPORTANT: Check oil level. Check prior to starting when oil is cold.

Park tractor on level ground.
Completely lower rockshaft.
When equipped, fully lower front hitch.

Pull out dipstick (A) and wipe clean. Reinsert dipstick, again remove and check oil level.

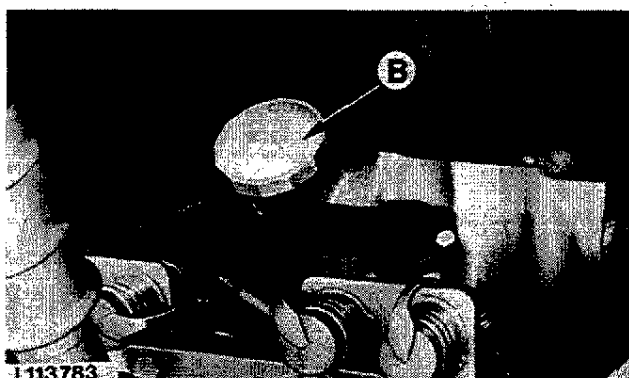
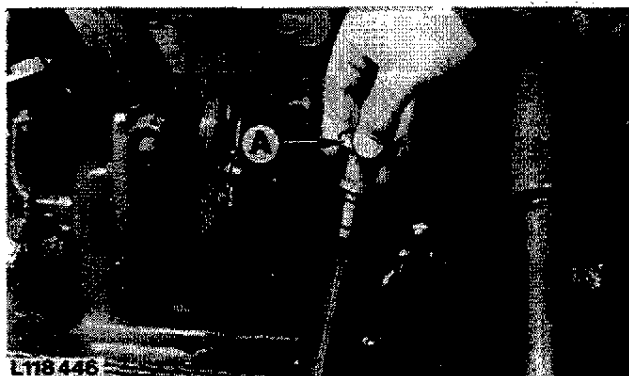
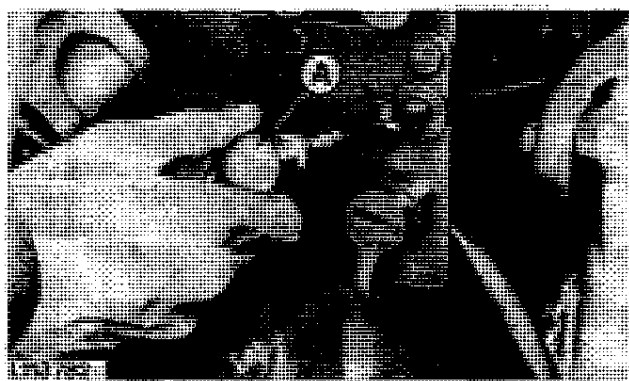
NOTE: If oil level is below top mark, top up with oil to bring level up to top mark on dipstick through filler neck (B).

IMPORTANT: After having topped up transmission with oil, wait for a period of five minutes before rechecking oil level with dipstick.

If necessary, add JOHN DEERE Hy-Gard transmission and hydraulic oil or equivalent (see "Transmission/Hydraulic Oil") to bring oil level to top mark on dipstick.

NOTE: Types of oil not meeting our specifications will not give satisfactory service and may result in eventual damage.

Service interval: Predelivery and every 50 hours.



L113782, L118446, L113094, L113783-LB21015AE-010488

CHANGING TRANSMISSION/HYDRAULIC OIL

A—Drain plugs
B—Transmission/
hydraulic oil filter

C—Return flow filter
D—Plug
E—Drain plug

Start engine and operate a few hydraulic functions to warm up oil.
Park tractor on level ground and shut off engine.
Apply handbrake (transmission in neutral).
Completely lower rockshaft.
When equipped, completely lower front hitch.

Remove drain plugs (A) and drain plug (E).

Replace transmission/hydraulic oil filters (B and C).
See under "Replacing Transmission/Hydraulic Oil Filters".

Remove plug (D), take out strainer and rinse in fuel.
Insert strainer before adding fresh oil. Tighten drain
plugs to 135 Nm (100 ft-lb). Use new seal rings.

Fill transmission case with transmission/hydraulic oil.

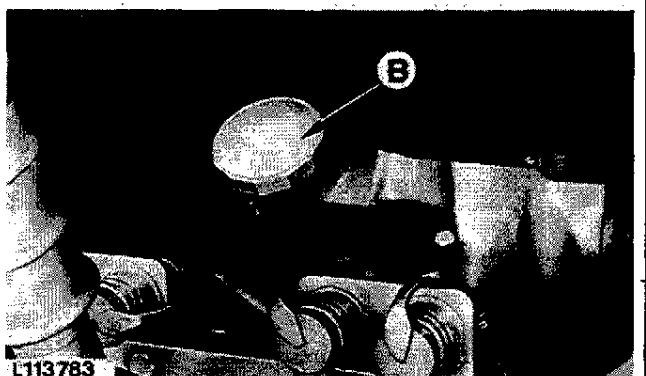
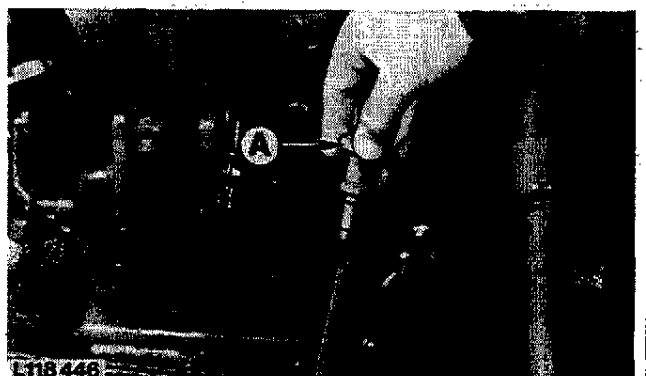
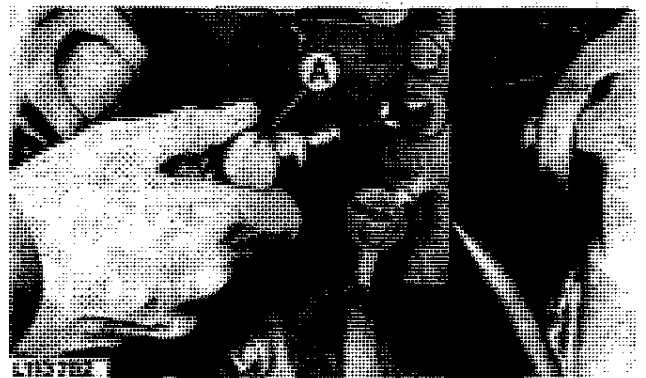
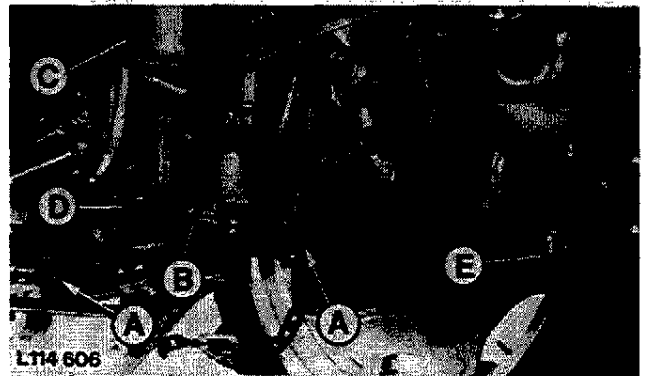
Run engine for a short period, and operate a few hydraulic functions.

Shut off engine.

After a period of five minutes, recheck oil level. Oil
should be level with top mark on dipstick. When necessary,
top up with oil as required.

A—Dipstick
B—Oil filler neck

Service interval: Every 1000 hours.



L114606, L113782, L118446, L113783-LB21015AE-010488

REPLACING TRANSMISSION/HYDRAULIC OIL FILTER

Remove return line (A) (filters with hydraulic motor connection).

Remove filter retaining screw (B) and lift out filter cover (C).

Remove filter element (D) and packing (E).

Carefully install new packing coated with grease in transmission case groove, making sure that packing is seated correctly.

Reinstall filter cover together with new element and tighten retaining screw.

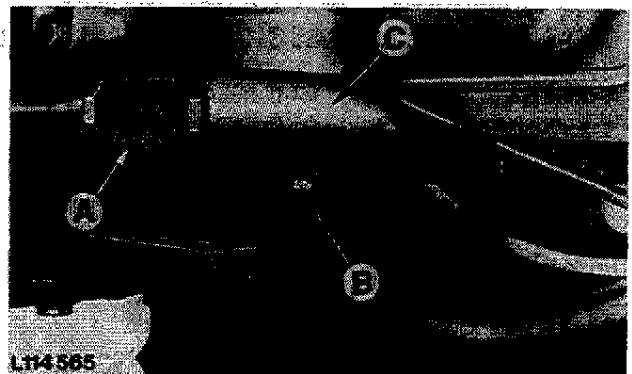
Do not overtighten!

Use original JOHN DEERE filter elements only!

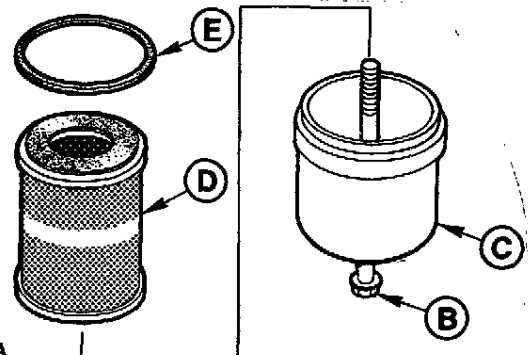
Service interval: After the first 50 hours of operation, the first 500 and thereafter every 500 hours.

A—Return line
B—Retaining screw
C—Filter cover

D—Filter element
E—Packing



L114565



L102742A

L114565, L102742A-LB31015AE-010287

REPLACING HYDRAULIC OIL RETURN FLOW FILTER

Remove oil filter (A) and clean filter mounting surface (B).

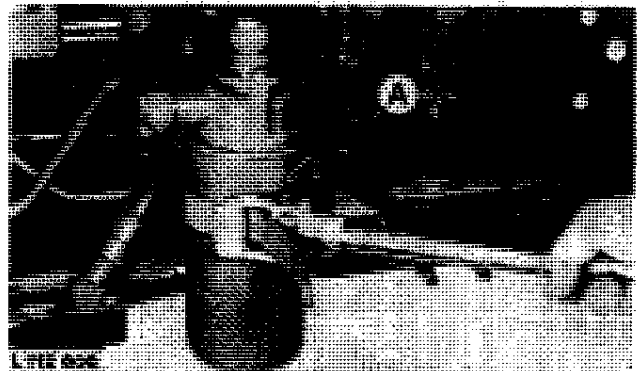
Use original JOHN DEERE filters only!

Apply a thin film of oil to seal ring (C) of new filter. Tighten filter element until seal ring touches mounting surface, then turn an additional 1/2 to 3/4 turns. Do not overtighten!

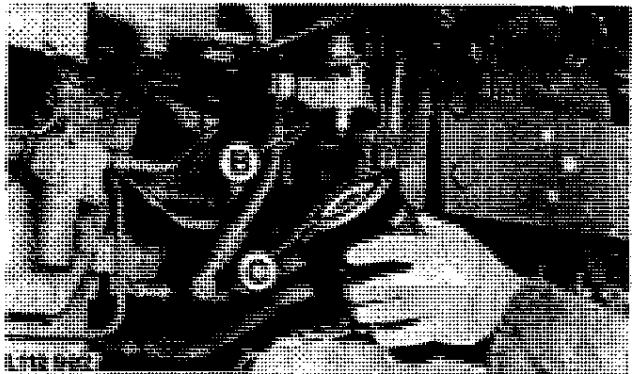
Start engine and check filter seat for leaks.

Service interval: After the first 50 hours of operation, the first 500 and thereafter every 500 hours.

A—Oil filter
B—Mounting surface
C—Seal ring



L112606



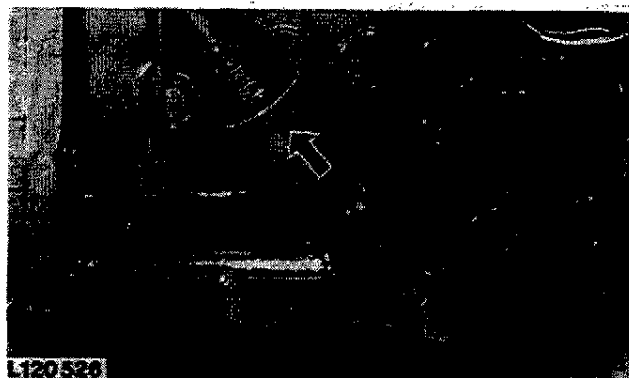
L112606

L112606, L112992-LB31015AE-010287

REPLACING HYDROSTATIC STEERING FILTER (Tractors Without SG2 Cab)

NOTE: Install filter with arrow pointing towards steering valve assembly.

Service interval: Every 1000 hours.



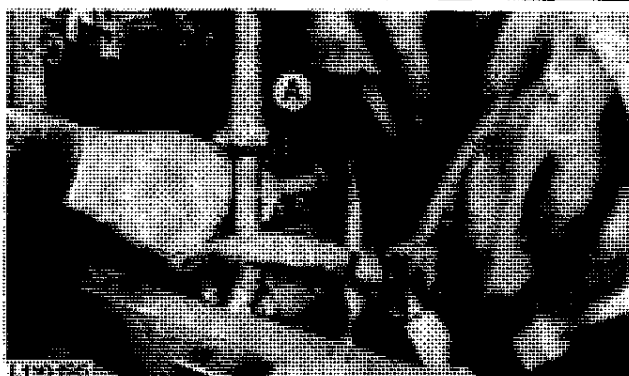
L120526

L120526-LB31015AE-010888

CLEANING HYDRAULIC PUMP FILTER STRAINER

A-Filter strainer

Service interval: Every 1000 hours.



L110195

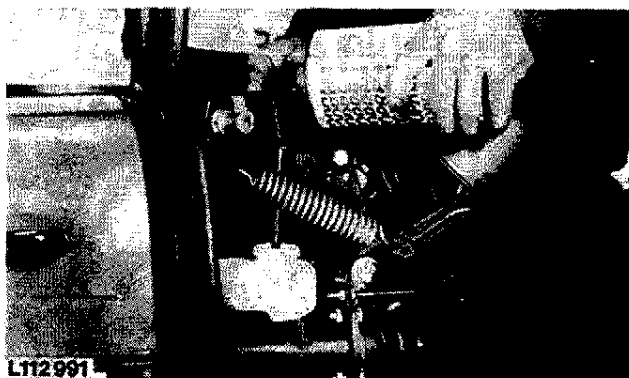
L110195-LA71015AE-141184

REPLACING BRAKE FLUID (With Hydraulic Operated Clutch)

Drain and fill system as described in Section 50, Group 05.

For brake fluid specifications, see under "Brake Fluid for Hydraulic Operated Clutch".

Service interval: Every two years.



L112991

L112991-LB21015AE-010488

CHECKING AXLE HOUSING OIL LEVEL

Remove level plug (A). Oil should be level with plug bore.

If necessary, top up with oil, using EP transmission oil only.

Service interval: Every 100 hours.



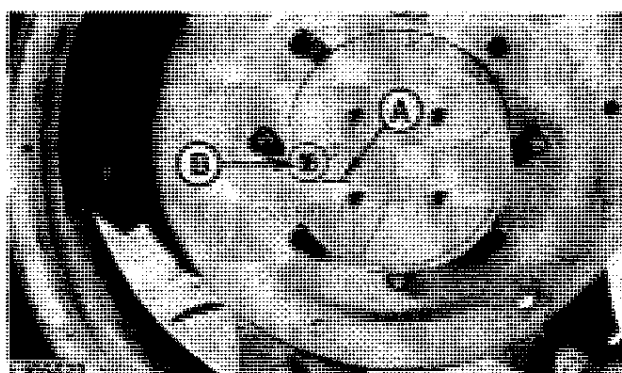
L100056-LB31015AE-010287

CHECKING OIL LEVEL IN WHEEL HUB HOUSINGS

Turn wheel until oil level mark (A) is horizontal. Remove level plug (B). Oil should be level with plug bore.

If necessary, top up with oil, using EP transmission oil only.

Service interval: Every 100 hours.



L106623-LA71015AE-141184

CHANGING FRONT AXLE OIL

NOTE: Only change oil directly after having operated tractor for some time.

Fill with EP transmission oil.

Front Axle Housing

Capacity:

- 2250 to 2850 5.3 liters (1.4 U.S. gal.)
- 2650N 3.25 liters (0.86 U.S. gal.)

Wheel Hub Housing

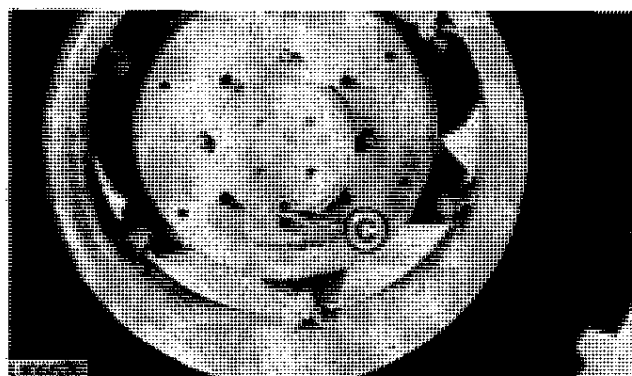
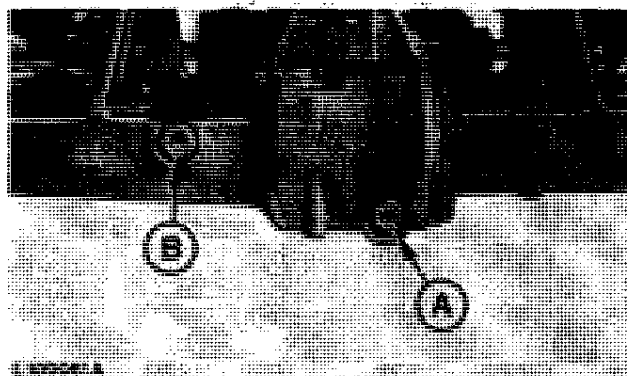
After draining oil, turn wheel until oil level mark is horizontal.

Capacity: 0.75 liters (0.2 U.S. gal.)

A-Drain plug
B-Level plug

C-Drain and level plug

Service interval: After the first 100 hours, thereafter every 1000 hours.



L100061A, L106626-LB31015AE-010888

CLEANING LUBRICATING POINTS

Service interval: Predelivery and every 50 hours.

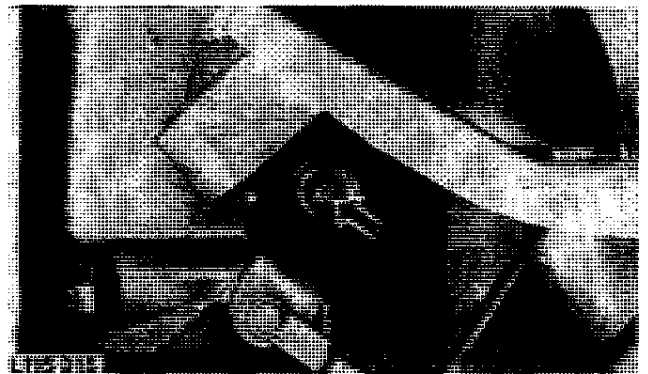
IMPORTANT: Thoroughly clean all grease fittings prior to greasing and replace damaged grease fittings immediately.

WART-LA71015FE-221184

LUBRICATING CLUTCH THROW-OUT BEARING (With Mechanically Operated Clutch)

Lubricate clutch throw-out bearing with three strokes of grease gun. Always use a high temperature, JOHN DEERE EP multipurpose grease.

Service interval: Every 100 hours.



L115315-LB31015AE-010888

CLEANING AND REPACKING FRONT WHEEL BEARINGS

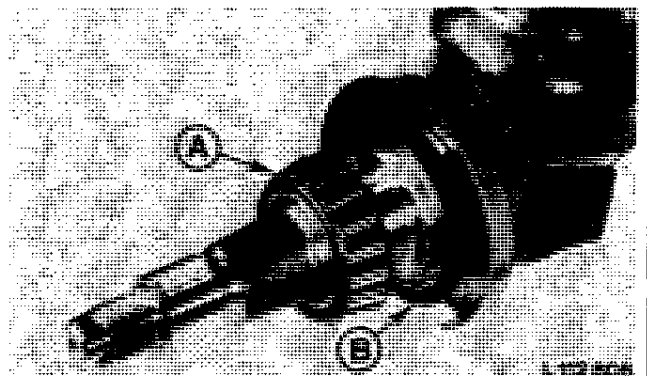
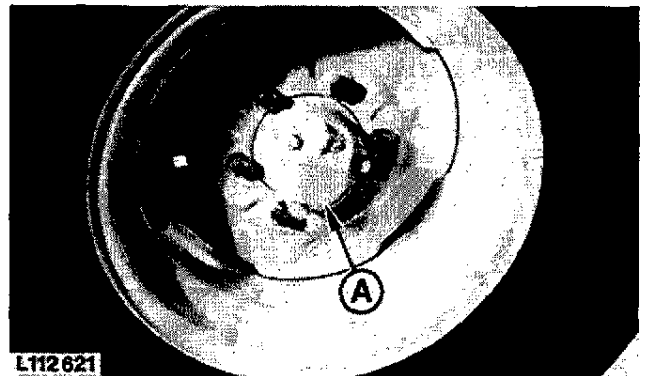
Remove hub cap (A).

Remove and disassemble hub assembly as described in Section 80, Group 10. Clean all parts with a suitable solvent and dry with compressed air.

Check all parts thoroughly for damage or excessive wear. Replace worn bearings (A). If collar is scored replace both oil seal (B) and collar.

Pack bearings liberally with JOHN DEERE EP multipurpose grease or SAE multipurpose grease. Coat oil seal with an EP multipurpose grease.

Service interval: Every 1000 hours.

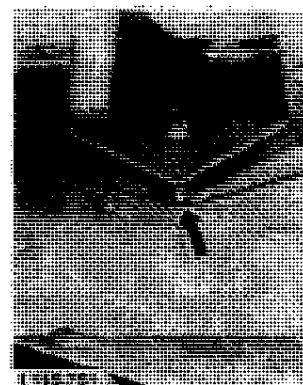
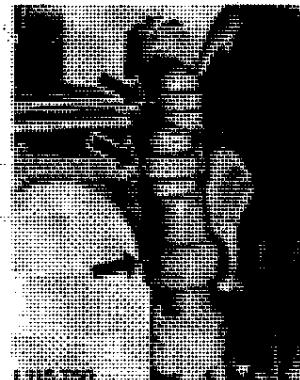
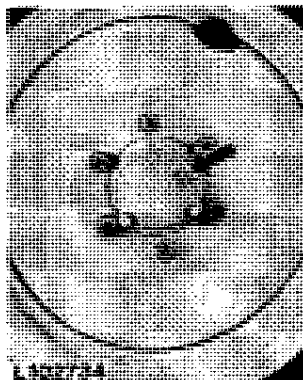


L112621, L112808-LB21015AE-010886

LUBRICATING FRONT AXLE AND FRONT WHEELS

Tractors Without Front Wheel Drive

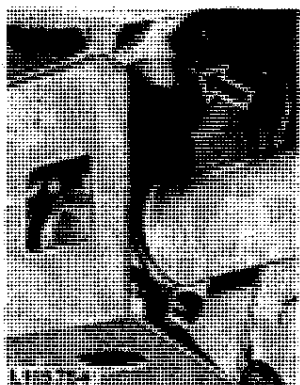
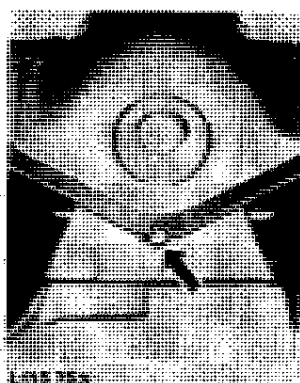
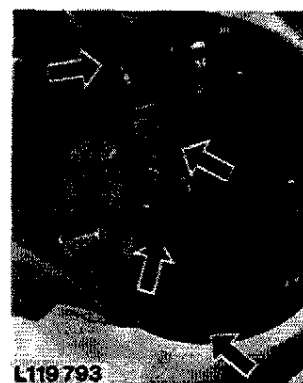
Service interval: Predelivery, every 10 hours in wet and muddy conditions, otherwise every 50 hours.



L102734, L115750, L115751, L115752, L115751-LB31015AE-010287

Tractors With Front Wheel Drive

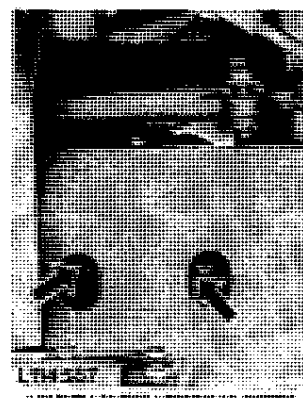
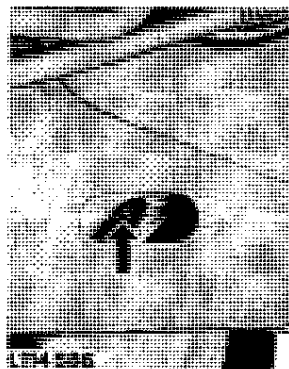
Service interval: Predelivery, every 10 hours in wet and muddy conditions, otherwise every 50 hours.



L119793, L115753, L115754-LB31015AE-010888

LUBRICATING U.J. DRIVE SHAFT (Tractors With Front Wheel Drive)

Service interval: Predelivery, every 10 hours in wet and muddy conditions, otherwise every 50 hours.



LUBRICATING REAR AXLE BEARINGS

Service interval: Every 10 hours (only when working in very wet and muddy conditions) and every 500 hours.

Grease both bearings with 6 to 8 strokes of grease gun. Use JOHN DEERE EP multipurpose grease or SAE EP multipurpose grease.



L102743-LB31015AE-010287

LUBRICATING THREE-POINT HITCH

Service interval: Every 200 hours.

Tractors With Cab

Lubricate fittings (A) with several strokes of grease gun. Use JOHN DEERE EP multipurpose grease.

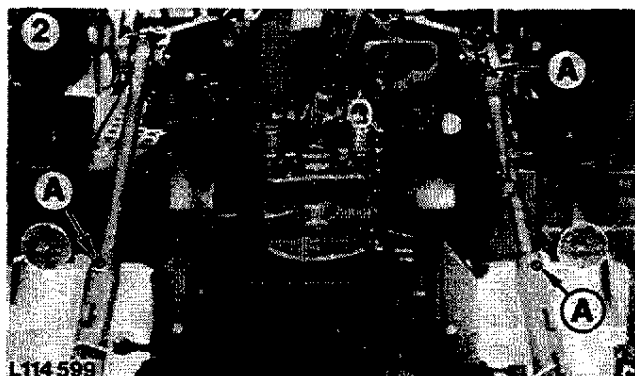
Lubricate lift link oilers (B) using engine oil.



L114598-LB31015AE-010287

Tractors Without Cab

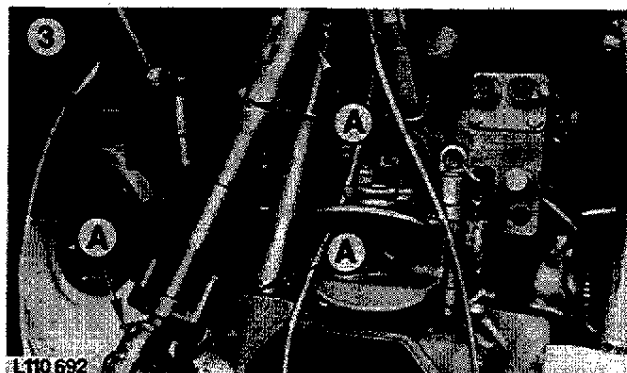
Lubricate fittings (A) with several strokes of grease gun. Use JOHN DEERE EP multipurpose grease.



L114599-LB31015AE-010287

Tractors With Increased Lifting Capacity

Lubricate fittings (A) with several strokes of grease gun. Use JOHN DEERE EP multipurpose grease.



L110 692

L110692-LB31015AE-010287

LUBRICATING FRONT PTO

Service interval: Every 200 hours.

Lubricate grease fitting with several strokes of grease gun. Use JOHN DEERE EP multipurpose grease.



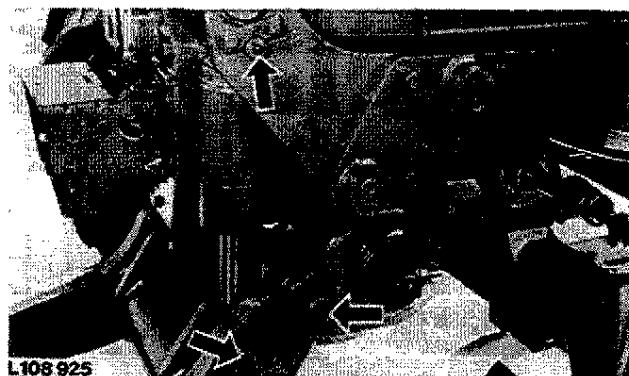
L115 007

L115007-LB21015AE-010886

LUBRICATING FRONT HITCH

Service interval: Every 200 hours.

Lubricate grease fittings with several strokes of grease gun. Use JOHN DEERE EP multipurpose grease.



L108 925

L108925-LA71015AE-221184

SPECIFICATIONS

PTO horsepower* at engine rated speed
– According to DIN 70020

	Tractors with: Synchronized Transmission	Collar Shift Transmission
2250	41 kW (56 PS)	41 kW (56 PS)
2450	46 kW (63 PS)	46 kW (63 PS)
2650	52 kW (71 PS)	50 kW (68 PS)
2650N	52 kW (71 PS)	
2850	57 kW (78 PS)	

– According to SAE J 1349

2250	39 kW (53 hp)	39 kW (53 hp)
2450	43 kW (59 hp)	43 kW (59 hp)
2650	48 kW (65 hp)	48 kW (65 hp)
2650N	48 kW (65 hp)	
2850	55 kW (75 hp)	

Slow idle 750 to 850 rpm

Fast idle:

– With synchronized transmission	2410 to 2510 rpm
– With collar shift transmission	2610 to 2660 rpm

Rated engine speed:

– With synchronized transmission	2300 rpm
– With collar shift transmission	2500 rpm

Air intake system vacuum 3.5 to 6.0 kPa (35 to 60 mbar; 14 to 25 in. water head)

Air cleaner restriction warning switch closes at a vacuum of 5.5 to 6.5 kPa (55 to 65 mbar; 22 to 26 in. water head)

Tractors Without Expansion Tank

Radiator cap pressure valve opens at 60 to 70 kPa (0.6 to 0.7 bar; 9 to 10 psi)
Radiator cap vacuum valve opens at 0 to 4 kPa (0 to 0.04 bar; 0 to 0.6 psi)

Tractors With Expansion Tank

Cap pressure valve opens at:

– Normal operation	60 kPa (0.6 bar; 9 psi)
– When malfunction occurs	120 kPa (1.2 bar; 17 psi)

On All Tractors

Cooling system test pressure 50 to 70 kPa (0.5 to 0.7 bar; 7 to 10 psi)

Fan belt should have 19 mm (3/4 in.) flex with 90 N (20 lb) pull midway between crankshaft and alternator or water pump.

Compressor belt should have 19 mm (3/4 in.) flex with 60 N (13 lb) pull midway between pulleys.

* With engine run in (more than 100 hours of operation) and having reached operating temperature (engine and transmission), measured by means of a dynamometer.
Permissible deviation $\pm 5\%$.

PRUEF-LB31020AE-010688

PRELIMINARY ENGINE TESTING

Before tuning up an engine, determine whether a tune-up will restore operating efficiency. Carry out the following checks:

1. After engine has been stopped for several hours, carefully loosen crankcase drain plug and watch for any water to seep out. A few drops could be due to condensation, but any more than this would indicate problems which require engine repairs rather than just a tune-up. Refer to the Technical Manual "Engines" in the event of malfunctions.
2. With engine stopped, inspect engine coolant for an oil film. With engine running, inspect coolant for air bubbles. Either condition would indicate problems which require engine repairs rather than just a tune-up. Refer to the Technical Manual "Engines" in the event of malfunctions.
3. Perform a dynamometer test and record horsepower. See Technical Manual "Operation and Tests".

Repeat dynamometer test after engine tune-up and compare results.

4. Perform compression test as instructed in Technical Manual "Engines".

PAUEF-LB210208E-010886

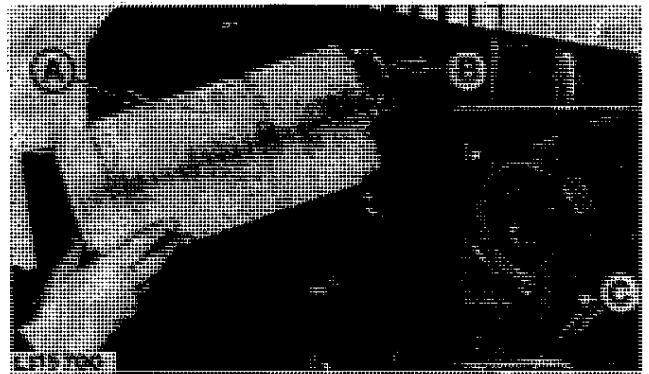
CHECKING AIR CLEANER ELEMENT

Remove and clean air cleaner element (A) (see Operator's Manual). Make sure safety element (B) is properly installed and replace, if necessary.

Make sure that dust unloading valve (C) (rubber cap) is in serviceable condition.

A—Air cleaner element
B—Safety element

C—Dust unloading valve



L115700-LB31020AE-010287

CHECKING AIR INTAKE SYSTEM CONNECTIONS FOR LEAKS

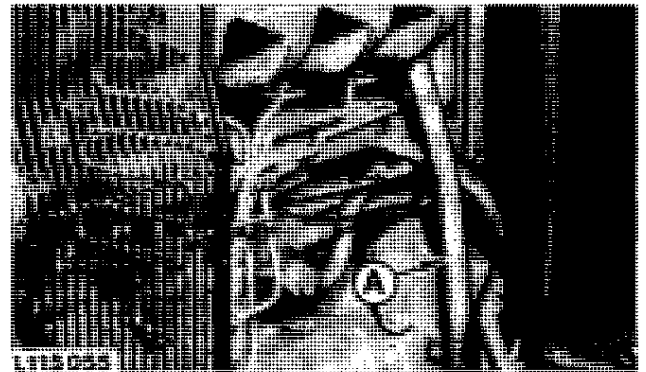
Check restriction in air intake system by measuring vacuum (see Technical Manual "Operation and Tests").



L113455-LB31020AE-010287

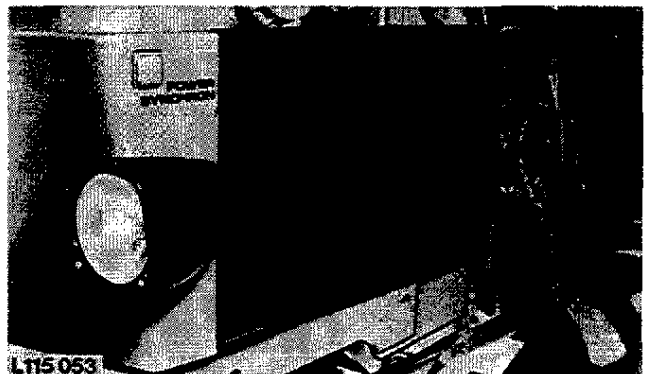
CHECKING CRANKCASE VENT TUBE FOR CLOGGING

Remove vent tube (A) and clean in a suitable solvent.



L115055-LB31020AE-010287

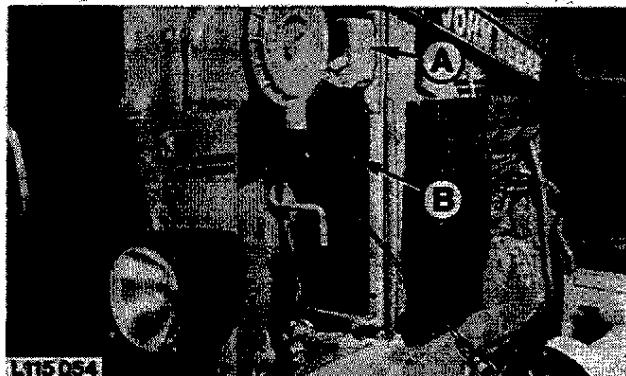
CLEANING RADIATOR SIDE PANELS AND GRILLE SCREENS



L115053-LB31020AE-010287

CLEANING RADIATOR AND OIL COOLER

Remove cap screws to clean part of radiator (B) located behind oil cooler (A).



L115 054

L115054-LB31020AE-010287

CLEANING CONDENSER (Tractors With Air Conditioning System)

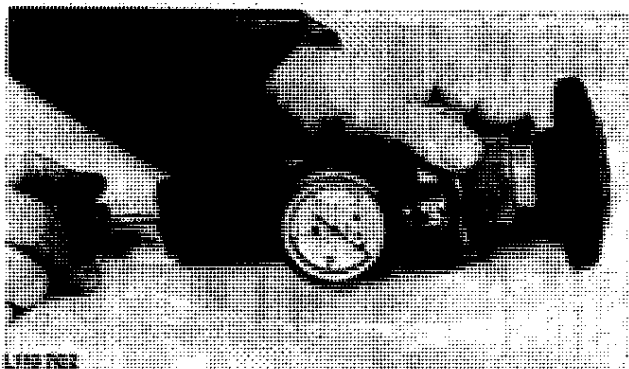
Remove condenser retaining screws (A) and then pull condenser (B) out to the left.



L114868-LB21020AE-000886

CHECKING RADIATOR CAP

Check radiator cap with a special tester.
See Technical Manual "Operation and Tests".



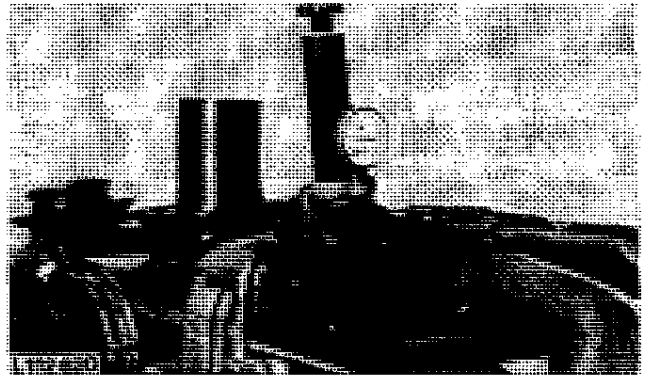
L113 702

L113702-LB21020AE-010886

CHECKING RADIATOR FOR LEAKS

Clean cooling system as described in Group 15 under "Replacing Coolant".

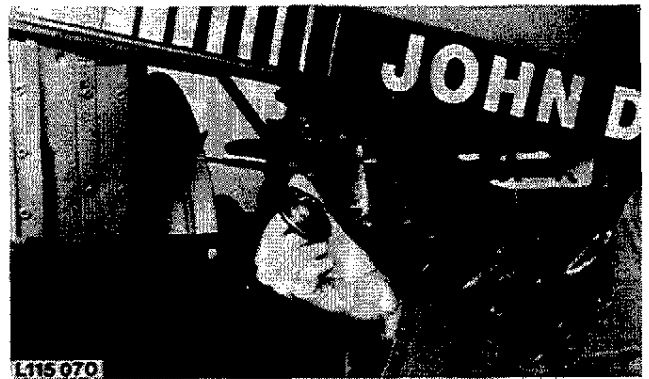
See Technical Manual "Operation and Tests", in the event of malfunctions.



L112620-LB21020AE-010885

CHECKING THERMOSTAT

See Technical Manual "Engines".

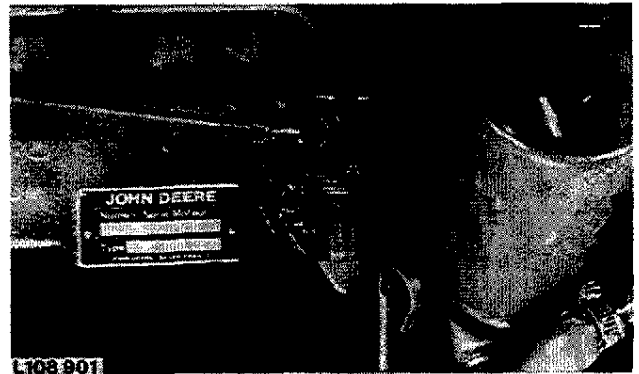


L115070-LB41020AE-010687

CHECKING FUEL TRANSFER PUMP

See Technical Manual "Engines".

Examine entire fuel system for leaks and remedy any defects.



L108901-LA71020AE-191184

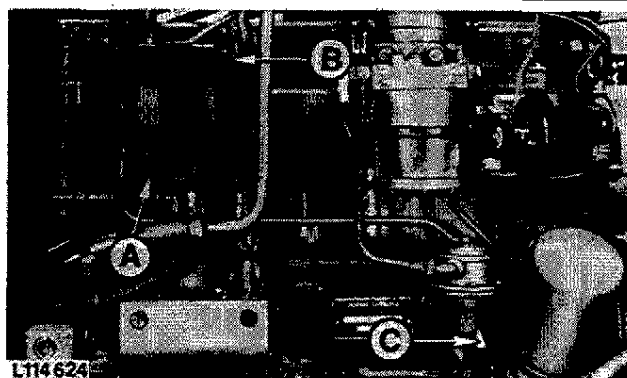
CHECKING FUEL FILTER FOR WATER AND SEDIMENT DEPOSITS

Remove drain plug (A).

Fuel system must be bled after draining fuel filter. After loosening bleed screw (B), operate fuel transfer pump primer lever (C) until fuel flows free from air bubbles. Tighten bleed screw.

NOTE: Fuel filters must be replaced periodically to prevent excessive restriction. During a tune-up is a good time to perform this service.

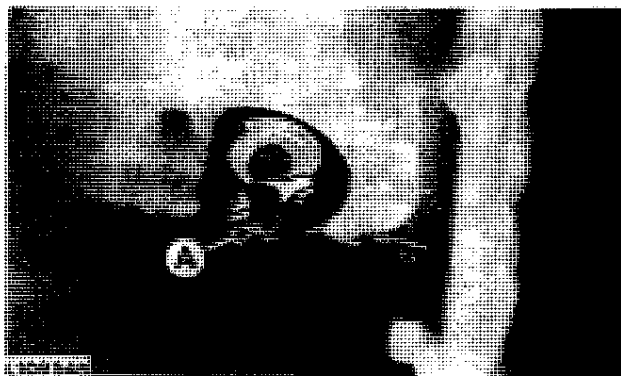
A—Drain plug
B—Bleed screw
C—Primer lever



L114624-LB31020AE-010287

CHECKING FUEL TANK FOR WATER OR SEDIMENT DEPOSITS

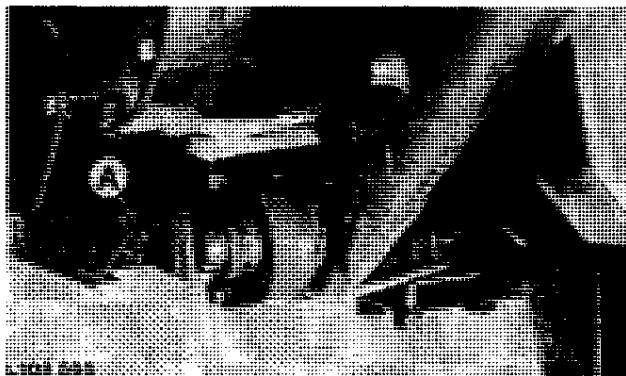
Open drain cock (A) on fuel tank and allow water or sediment deposits to drain out.



L109546-LB31020AE-010287

CHECKING AUXILIARY FUEL TANK FOR WATER AND SEDIMENT DEPOSITS (When Equipped)

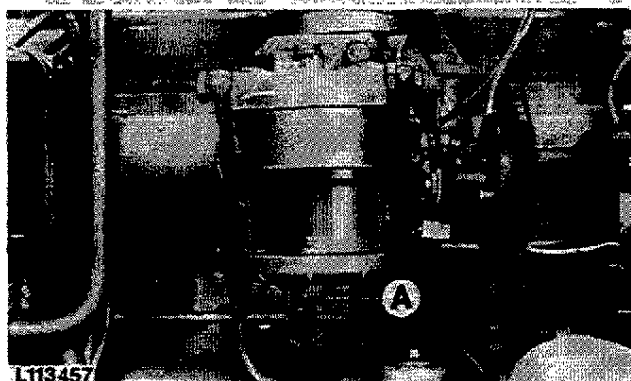
Open drain cock (A) on fuel tank and allow water or sediment deposits to drain out.



L108565-LB31020AE-010888

CLEANING WATER TRAP (When Equipped)

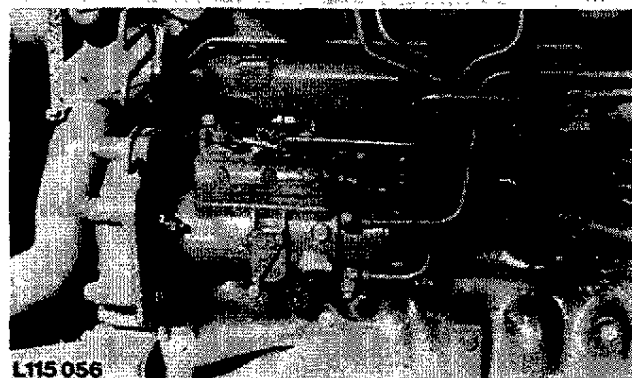
A—Drain plug



L113457-LB31020AE-010287

CHECKING FUEL INJECTION PUMP ADJUSTMENTS

See Technical Manual "Engines".



L115056-LB31020AE-010287

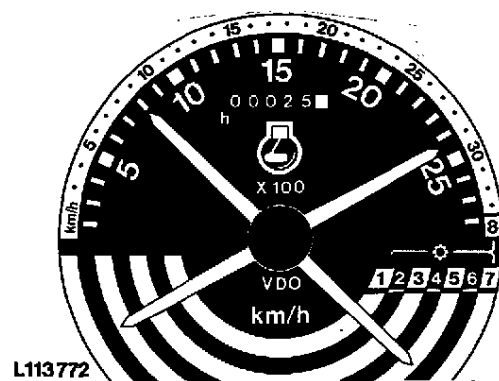
CHECKING SLOW AND FAST ENGINE IDLE SPEEDS

Tractors With Synchronized Transmission

Run engine until it reaches operating temperature and then check engine speeds.

Slow idle: 750 to 850 rpm. Fast idle: 2410 to 2510 rpm

See Technical Manual "Engines" or Section 30, Group 15 should speeds have to be adjusted.



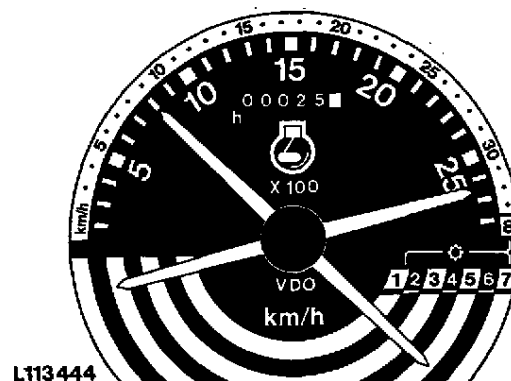
L113772-LB31020AE-010287

Tractors With Collar Shift Transmission

Run engine until it reaches operating temperature and then check engine speeds.

Slow idle: 750 to 850 rpm
Fast idle: 2610 to 2660 rpm

See Technical Manual "Engines" or Section 30, Group 15 should speeds have to be adjusted.



L113444-LB31020AE-010287

CHECKING SPEED CONTROL LINKAGE ADJUSTMENT

See Section 30, Group 15.

PRUEF-LA7102DCE-191184

CHECKING BATTERIES

Clean batteries, cables and battery boxes with a clean cloth.

If necessary, remove oxidation on terminals using a wire brush.

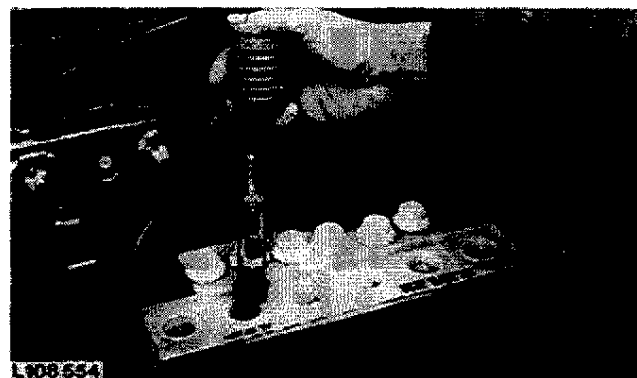
Coat battery poles and connectors with petroleum jelly.

Check level of electrolyte in each battery cell.

If necessary, add distilled water.

NOTE: If water must be added to batteries more often than every 200 hours, alternator may be overcharging.

See Technical Manual "Operation and Tests", in the event of malfunctions.



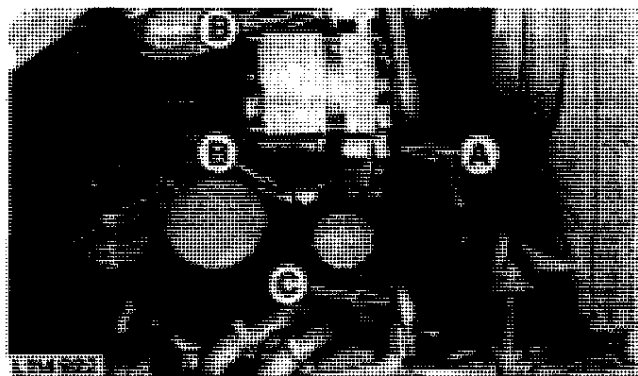
L108554-LB21010AE-010886

CHECKING FAN BELT TENSION

Using belt tension gauge JDST-28 (C) check tension of fan belt.

Fan belt should have 19 mm (3/4 in.) flex with 90 N (20 lb) pull midway between crankshaft and alternator or water pump.

A-Fan belt
B-Attaching nut
C-Belt tension gauge JDST-28



L114922-LB21010AE-010886

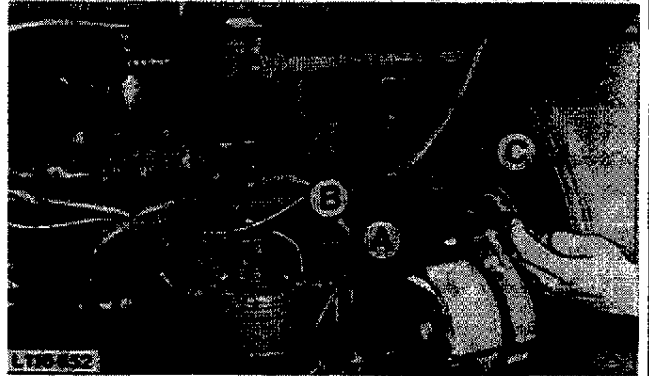
CHECKING COMPRESSOR BELT TENSION (Tractors With Air Conditioning System)

Using belt tension gauge JDST-28 (A) check compressor belt tension.

Compressor belt should have 19 mm (3/4 in.) flex with 60 N (13 lb) pull midway between both pulleys.

A—Belt tension gauge
JDST-28

B—Adjusting screw
C—Compressor belt



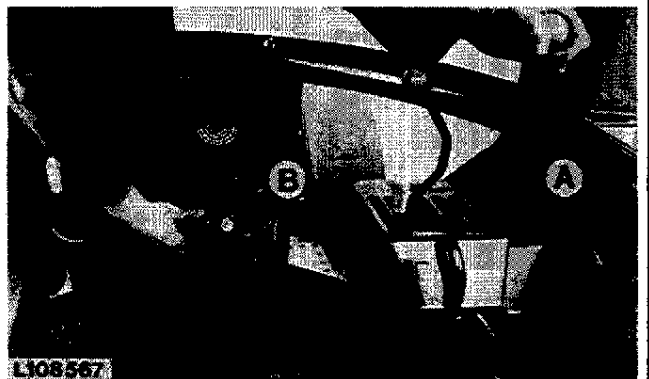
L116652-LB31020AE-010888

CHECKING START SAFETY SWITCH

Operate starter switch (B).

NOTE: Starting motor should turn only with the range shift lever (A) in neutral position.

See Technical Manual "Operation and Tests" in the event of malfunctions.



L108567-LB31020AE-010888

CHECKING OPERATION OF STARTING MOTOR

See Technical Manual "Operation and Tests" in the event of malfunctions.



L114602-LB31020AE-010287

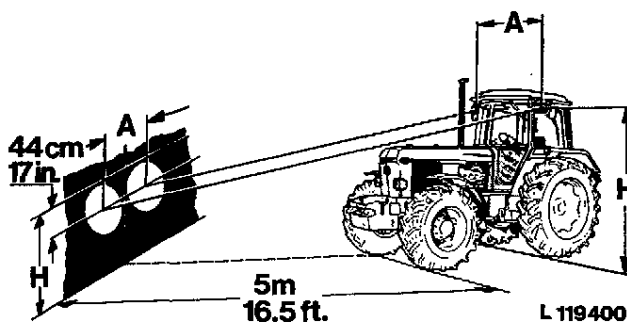
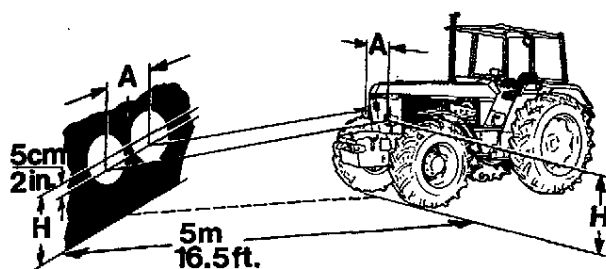
CHECKING LIGHTING SYSTEM

See Operator's Manual.

Check headlights for correct adjustment, and adjust when necessary.

When equipped, check roof headlights and adjust, when necessary.

See Technical Manual "Operation and Tests", in the event of malfunctions.

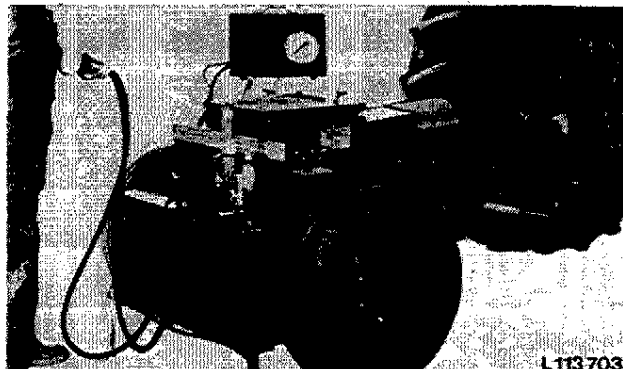


L119400-LB21020AE-010488

FINAL ENGINE CHECK

Measure engine horsepower with a dynamometer. See Technical Manual "Operation and Tests".

NOTE: Compare performance with test carried out before tune-up.



L113703-LB21020AE-010886

CHECKING TRACTOR OPERATION

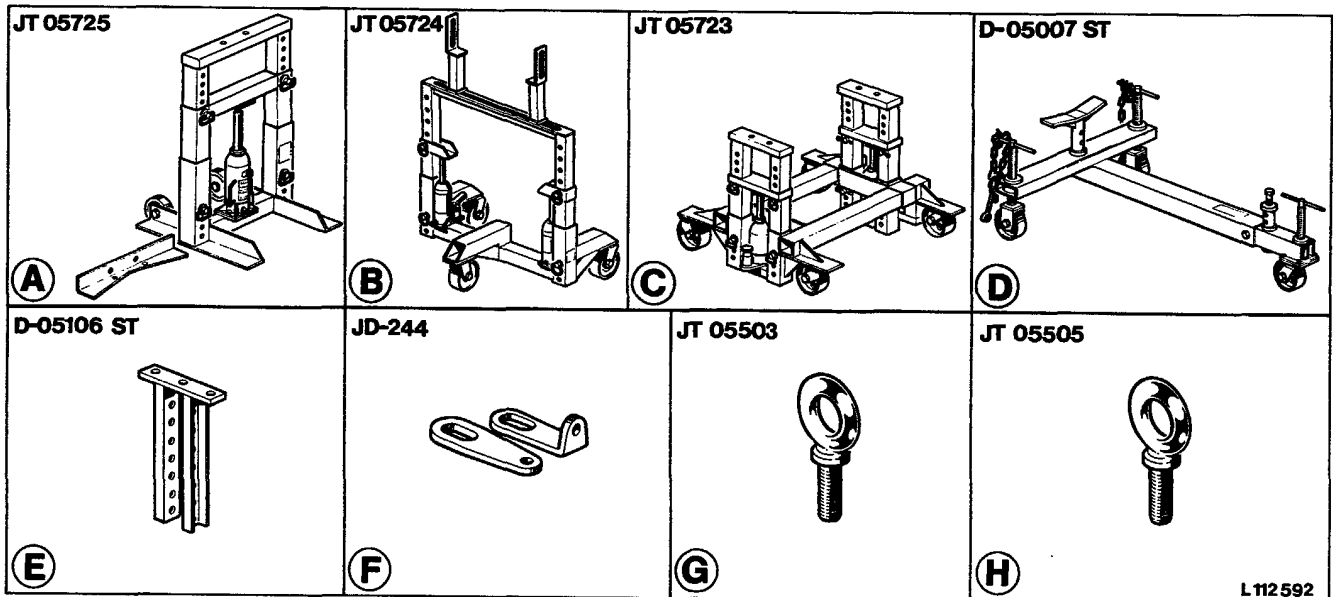
Check power train, steering and brakes, hydraulic system and SG2 or MC1 cab as described in Group 10 of this section.

Refer to relevant group in the Technical Manual in the case of a malfunction.

PRUEF-LB31020BE-010287

Group 25 TRACTOR SEPARATION

SPECIAL TOOLS



L 112 592

A—Lifting and supporting tractor (plus a commercially available 12 ton jack)
B—Lifting and supporting tractor (plus two commercially available 5 ton jacks)
C—Removing and installing transmission case (plus two commercially available 8 ton jacks)

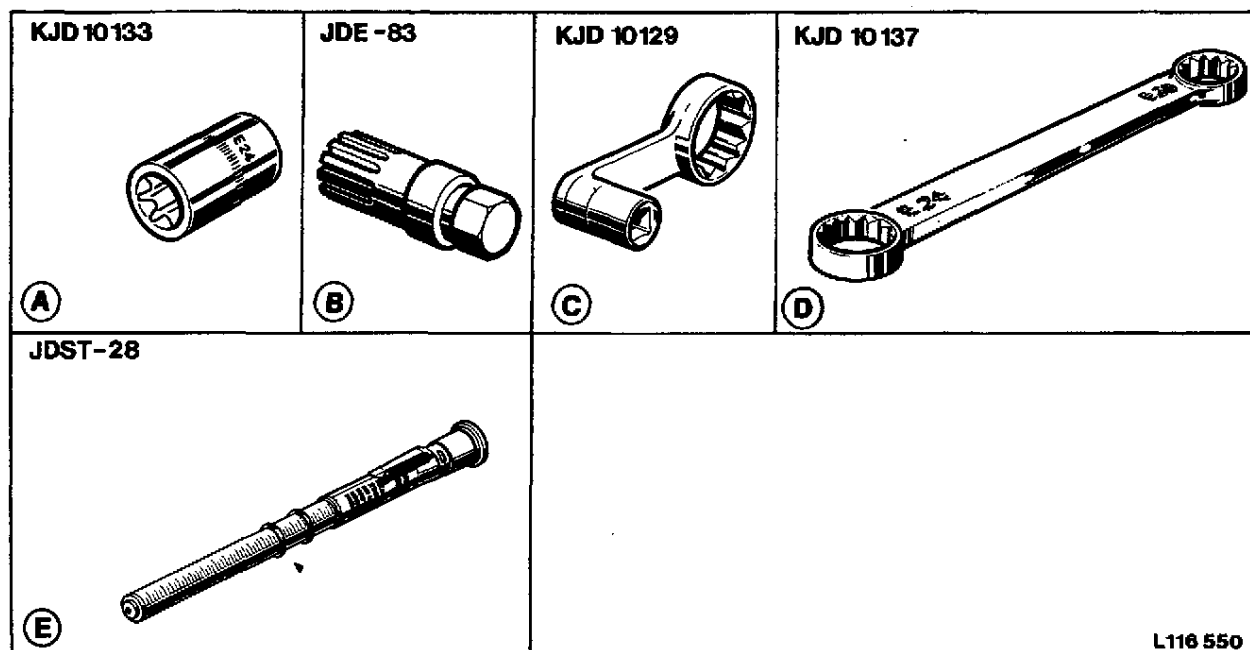
D—Removing and installing final drives and front drive axle or front axle
E—Removing and installing final drives and front drive axle or front axle (plus one retaining bracket T25671)

F—Removing and installing engine and, using two straight lifting eyes JD244-1, removing and installing front PTO
G—Removing and installing rockshaft
H—Removing and installing SG2 cab (2 used)

NOTE: Modify both supports of tractor splitting stand JT05724 (B) as shown in tools for self-manufacture.

L112592-LB31025AE-010287

SPECIAL TOOLS (Contd.)



A—Loosening and tightening TORX screws between front axle carrier and engine*

B—Turning the engine

C—Loosening and tightening upper left-hand cap screw between engine and clutch housing

D—Loosening and initial tightening of TORX screws

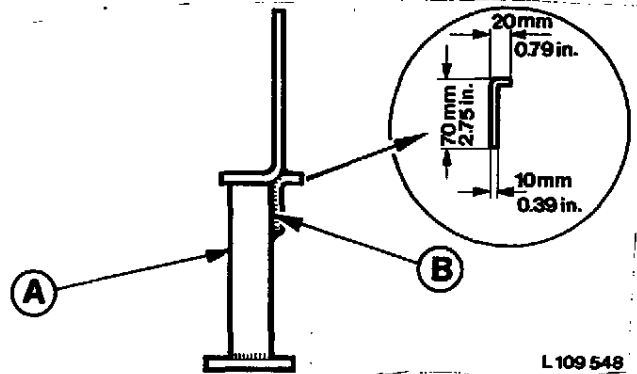
E—Checking V-belt tension

* On tractors with increased lifting capacity

SPECIAL TOOLS (Self-Manufacture)

SUPPORTS OF SPLITTING STAND JT05724

A—Support
B—Angle steel (ST 37)

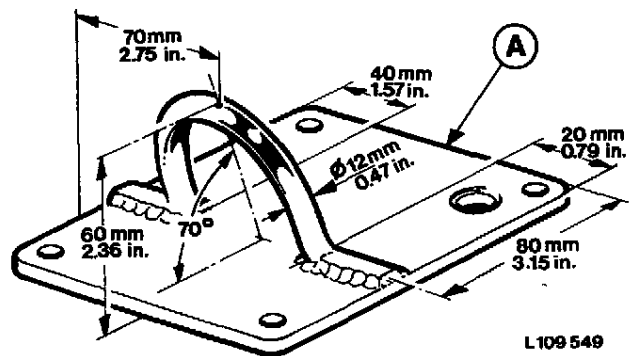


L 109 548

L109548-LB21025AE-010886

LIFTING DEVICE FOR REMOVING AND INSTALLING CLUTCH HOUSING

A—Base plate (L 39896)

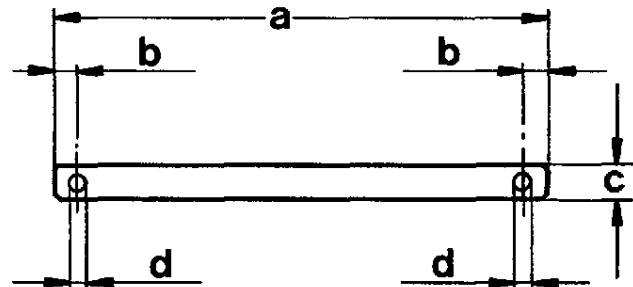


L 109 549

L109549-LA71025AE-120385

STEEL SHAFT FOR LIFTING DEVICE, SG2 OR MC1 CAB

a—1100 mm (43.31 in.)
b—25 mm (0.98 in.)
c—22 mm (0.87 in.) diameter for
category I or 29 mm (1.14 in.) dia.
for category II draft links
d—5 mm (0.2 in.) diameter



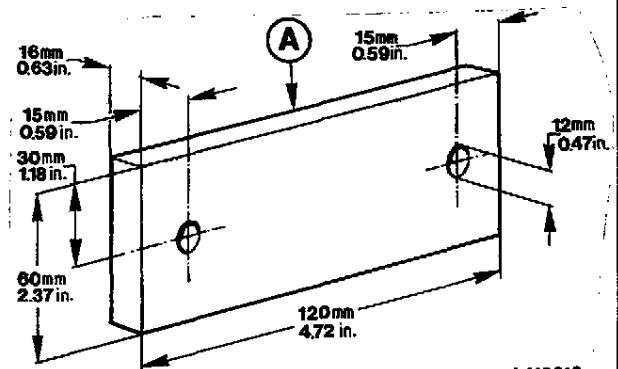
L 110 196

L110196-LB31025AE-010287

HOLDING PLATE FOR REMOVING AND INSTALLING MC1 CAB

A—Flat steel (ST 37) (4 used)

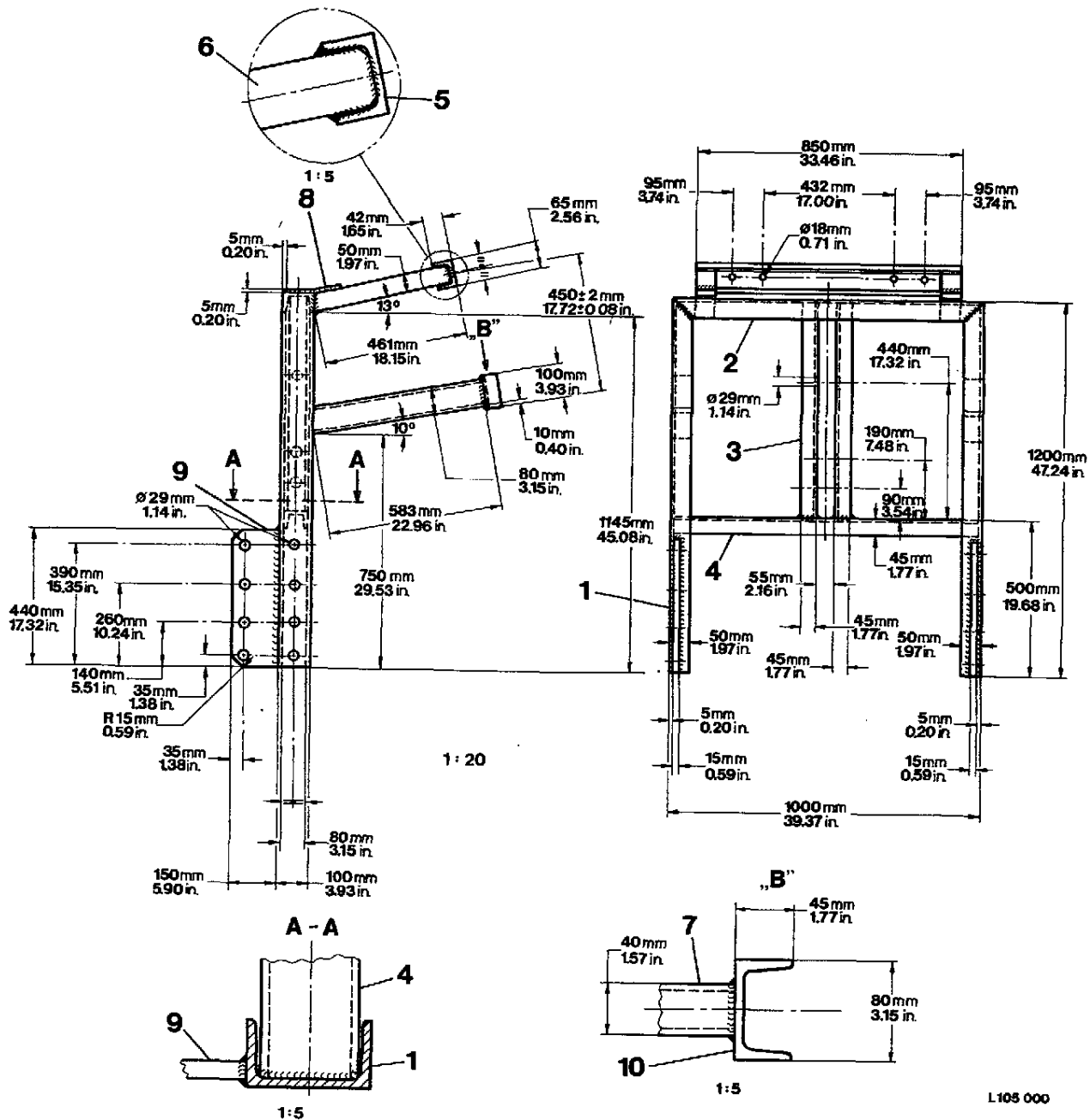
NOTE: Four holding plates with cap screws and nuts
are required to remove the MC1 cab.



L 118 213

L118213-LB31025AE-010287

**LIFTING DEVICE,
REMOVAL OF SG2 OR MC1 CAB**



1-U-profile steel (2 used)
U-100 x 1200 mm (3.94 x 47.24 in.)
2-U-profile steel (1 used)
U-100 x 1000 mm (3.94 x 39.37 in.)
3-U-profile steel (1 used)
U-80 x 694 mm (3.15 x 27.32 in.)

4-U-profile steel (1 used)
U-80 x 988 mm (3.15 x 38.90 in.)
5-U-profile steel (1 used)
U-65 x 850 mm (2.56 x 33.46 in.)
6-Square steel (2 used)
50 x 50 x 461 mm
(1.97 x 1.97 x 18.15 in.)

7-Square tubular steel (2 used)
80 x 40 x 5 x 583 mm
(3.15 x 1.58 x 0.20 x 22.95 in.)
8-Flat steel (2 used) 50 x 5 x 190 mm
(1.97 x 0.20 x 7.48 in.)
9-Flat steel (2 used) 150 x 15 x 440 mm
(5.90 x 0.59 x 17.32 in.)
10-U-profile steel (2 used)
U-80 x 100 mm (3.15 x 3.94 in.)

L105 000

L105000-LB31025AE-010287

SPECIFICATIONS

Axial play of front wheel drive axle	0 to 0.5 mm (0 to 0.02 in.)
Axial play of front axle	0 to 0.4 mm (0 to 0.015 in.)

TEILEZ-LB31025AE-010287

TORQUES FOR HARDWARE

Front axle carrier to engine block (without increased lifting capacity), cap screws	230 Nm (170 ft-lb)
Front axle carrier to engine block (with increased lifting capacity)	
– TORX screws	250 Nm (185 ft-lb)
– Cap screws	230 Nm (170 ft-lb)
Front axle carrier to oil pan, TORX screws or cap screws	400 Nm (300 ft-lb)
Hydraulic pump drive shaft, cap screws	50 Nm (35 ft-lb)
Hydraulic pump drive shaft (tractors with front PTO), hex. socket screws	140 Nm (100 ft-lb)
Universal-jointed drive shaft flange to front axle drive hub, hex. nuts	75 Nm (55 ft-lb)
Side frames to front axle carrier, cap screws	230 Nm (170 ft-lb)
Side frames to flywheel housing, cap screws	230 Nm (170 ft-lb)
Clutch housing to engine block, cap screws and hex. nuts	230 Nm (170 ft-lb)
Oil pan to clutch housing, cap screws	230 Nm (170 ft-lb)

TEILEZ-LB31025BE-010287

TORQUES FOR HARDWARE (Contd.)

Cable to starting motor (terminal 30), hex. nut	30 Nm (23 ft-lb)
Clutch housing to transmission case, cap screws	160 Nm (120 ft-lb)
Transmission shift cover to clutch housing, cap screws	50 Nm (35 ft-lb)
Transmission case oil drain plug	135 Nm (100 ft-lb)
Final drives to transmission case, cap screws	120 Nm (85 ft-lb)
Retainer of stabilizer chains, hex. nuts	120 Nm (85 ft-lb)
Rockshaft to transmission case, cap screws	120 Nm (85 ft-lb)
Tractors with flanged rear axle: – Rear wheels to rear axle	400 Nm (300 ft-lb)
Tractors with rack-and-pinion axle: – Pinion sleeve half to wheel hub	215 Nm (160 ft-lb)
– Key sleeve half to wheel hub	400 Nm (300 ft-lb)
Front wheels to wheel hub: – Without front wheel drive	150 Nm (110 ft-lb)
– With front wheel drive	300 Nm (220 ft-lb)
Rear fender to final drive housing, hex. nuts	120 Nm (85 ft-lb)
4-post roll guard to fender, cap screws	120 Nm (85 ft-lb)
2-post roll guard to final drive housing, cap screws	230 Nm (170 ft-lb)
2-post roll guard to crossmember, cap screws	230 Nm (170 ft-lb)
Front PTO to front axle carrier, cap screws	400 Nm (300 ft-lb)

TEILEZ-LB31025AE-010888

TORQUES FOR HARDWARE (Contd.)

Front PTO oil drain plug	30 Nm (23 ft-lb)
Front PTO housing halves, upper cap screws	55 Nm (40 ft-lb)
Side frames to front hitch center section (tractors with front hitch)	
– Cap screws	335 Nm (245 ft-lb)
– Adjusting screws	10 Nm (7 ft-lb)
– Hex. nuts	245 Nm (180 ft-lb)
Side frames to flywheel housing (tractors with front hitch), cap screws	335 Nm (245 ft-lb)
Drag link to steering shaft arm, slotted nut	90 Nm (65 ft-lb)
Front axle or front wheel drive axle to front axle carrier, slotted nut	300 Nm (220 ft-lb)
<i>NOTE: If cotter pin cannot be inserted into slotted nut when tightened to specified torque, tighten nut to next slot and insert cotter pin.</i>	
Front axle carrier bearing pin, securing cap screw	100 Nm (75 ft-lb)
SG2 cab to rubber bearing block, hex. nuts and cap screws	200 Nm (145 ft-lb)
MC1 cab to rubber bearing block, cap screws	245 Nm (180 ft-lb)
Steering wheel to steering shaft, hex. nut	70 Nm (50 ft-lb)

TEILEZ-LB31025DE-010287

CAPACITIES

Engine Crankcase

- Initial filling	10.5 liters (2.8 U.S. gal.)
- Oil change with filter replacement	10.0 liters (2.6 U.S. gal.)

Transmission/Hydraulic System (including oil reservoir and cooler)

Initial filling (Synchronized Transmission):

- Without front wheel drive	50.0 liters (13.2 U.S. gal.)
- With front wheel drive	53.0 liters (14.0 U.S. gal.)
- With front PTO	55.0 liters (14.5 U.S. gal.)
- With hydrostatic creeper transmission, an additional	2.0 liters (0.53 U.S. gal.)

Oil change with filter replacement:

- without front wheel drive	47.5 liters (12.5 U.S. gal.)
- with front wheel drive	50.5 liters (13.3 U.S. gal.)
- with front PTO	52.5 liters (13.9 U.S. gal.)
- with hydrostatic creeper transmission, an additional	2.0 liters (0.53 U.S. gal.)

Initial filling (Collar Shift Transmission):

- 2250 and 2450	41.0 liters (10.8 U.S. gal.)
- 2650	46.0 liters (12.2 U.S. gal.)

Oil change with filter replacement:

- 2250 and 2450	33.0 liters (8.7 U.S. gal.)
- 2650	38.0 liters (10.0 U.S. gal.)
- With heavy-duty final drives, an additional	5.0 liters (1.3 U.S. gal.)

Front Wheel Drive

- Axle housing	
2250 to 2850	5.3 liters (1.4 U.S. gal.)
2650N	3.25 liters (0.88 U.S. gal.)
- Wheel hub housings, each	0.75 liters (0.2 U.S. gal.)

Cooling System

- Without cab	13.0 liters (3.4 U.S. gal.)
- With SG2 or MC1 cab (with heater)	15.0 liters (4.0 U.S. gal.)

Hydraulic Clutch Operating System

(Tractors with SG2 cab)	250 cm ³ (8.75 fl.oz.)
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Fuel tank	84.0 liters (22.2 U.S. gal.)
Auxiliary tank	52.0 liters (13.7 U.S. gal.)

STANDARD TORQUES FOR HARDWARE

Recommended torques in Nm and ft-lb
for hose and pipeline connections

A	B		C	
	Nm	ft-lb	Nm	ft-lb
3/8-24 UNF	7,5	5,5	8	6
7/16-20 UNF	10	7	12	9
1/2-20 UNF	12	9	15	11
9/16-18 UNF	15	11	25	18
3/4-16 UNF	25	20	45	35
7/8-14 UNF	40	30	60	45
1-1/16-12 UNC	60	45	100	75
1-3/16-12 UNC	70	50	120	90
1-5/16-12 UNC	80	60	140	105
1-5/8-12 UNC	110	80	190	140
1-7/8-12 UNC	150	110	220	160

L 110 192

A—Thread size

B—With O-rings

C—With cone

L110192-LB21005AE-010886

Tractor Separation

Recommended torques in Nm and ft-lb for UNC and UNF cap screws

A	10.9 C		12.9 D	
	Nm	ft-lb	Nm	ft-lb
1/4	15	10	20	15
5/16	30	20	40	30
3/8	50	35	70	50
7/16	80	55	110	80
1/2	120	85	170	120
9/16	180	130	240	175
5/8	230	170	320	240
3/4	400	300	580	425
7/8	600	445	930	685
1	910	670	1400	1030
1-1/8	1240	910	1980	1460
1-1/4	1700	1250	2800	2060

L 110 193

A—Head marking
(identifying strength)

B—Thread O.D. (in.)
C—Tempered steel high strength
bolts and cap screws

D—Tempered steel extra high
strength bolts and cap screws

NOTE: A variation of $\pm 10\%$ is permissible for all
torques indicated in this chart.

Torque figures indicated above and in the specification sections of this manual are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

L110193-LB21005AE-010866

Tractor Separation

Recommended torques in Nm and ft-lb for metric cap screws

A	8.8 C		10.9 D		12.9 E	
	Nm	ft-lb	Nm	ft-lb	Nm	ft-lb
M 5	7	5	9	6,5	10	8,5
M 6	10	8,5	15	10	20	15
M 8	30	20	40	30	40	30
M 10	50	35	80	60	90	70
M 12	100	75	140	100	160	120
M 14	160	120	210	155	260	190
M 16	240	175	350	260	400	300
M 20	480	355	650	480	780	575
M 24	820	605	1150	850	1350	995
M 30	1640	1210	2250	1660	2700	1990
M 36	2850	2110	4000	2950	4700	3465

L 110 194

A-Head marking
(Identifying strength)
B-Thread O.D. (mm)

C-Standard bolts and cap screws
D-Tempered steel high strength
bolts and cap screws

E-Tempered steel extra high
strength bolts and cap screws

NOTE: A variation of $\pm 10\%$ is permissible for all
torques indicated in this chart.

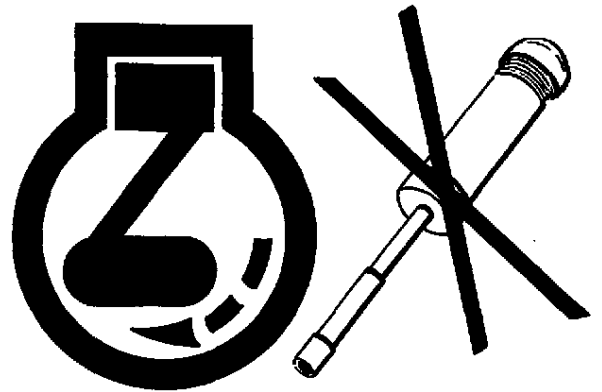
Torque figures indicated above and in the speci-
fication sections of this manual are valid for non-
greased or non-oiled threads and heads unless
otherwise specified. Therefore, do not grease or
oil bolts or cap screws unless otherwise specified
in this manual.

L110194-LS21005AE-010886

IMPORTANT NOTES



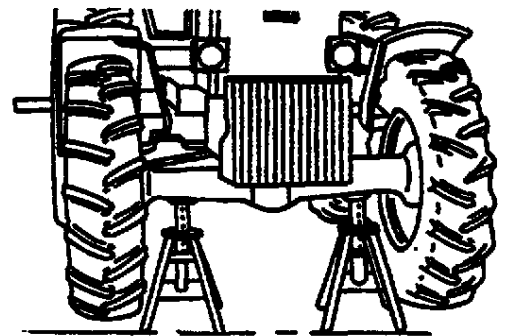
CAUTION: Do not lubricate or adjust tractor while engine is running, unless specifically recommended.



Z 20 919



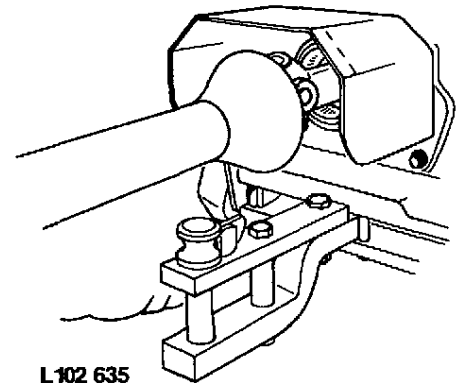
CAUTION: When servicing front wheel drive tractor with rear wheels supported off the ground, always support front wheels in a similar manner. Malfunction of electrical or hydraulic system can lead to unintentional engaging of the front wheel drive, even if tumbler switch is in "Off" position, thereby setting the tractor in motion when front wheels are not raised.



L102 631



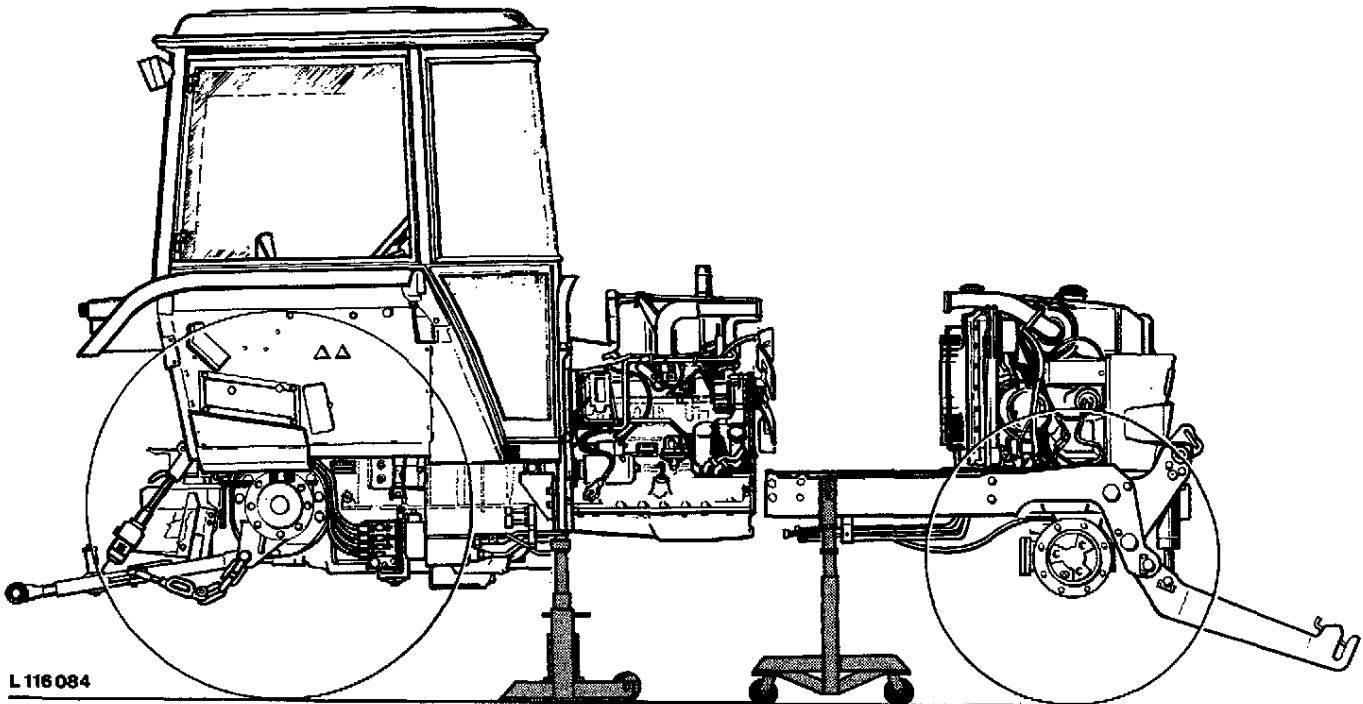
CAUTION: Reinstall all shields and guards removed for cleaning, servicing or repairs.



L102 635

Z20919, L102631, L102635-LB21025AE-010886

REMOVING TRACTOR FRONT END



L116084-LB31025AE-010287

DISCONNECTING BATTERY GROUND STRAPS

On tractors with SG2 cab or MC1 cab and side frames, remove batteries.

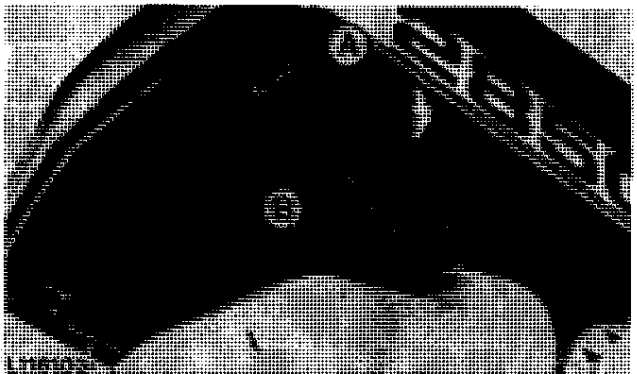


L110906-LB31025AE-010287

REMOVING ENGINE HOOD

Remove exhaust pipe and air precleaner, when equipped. Remove radiator side plates and grille screens.

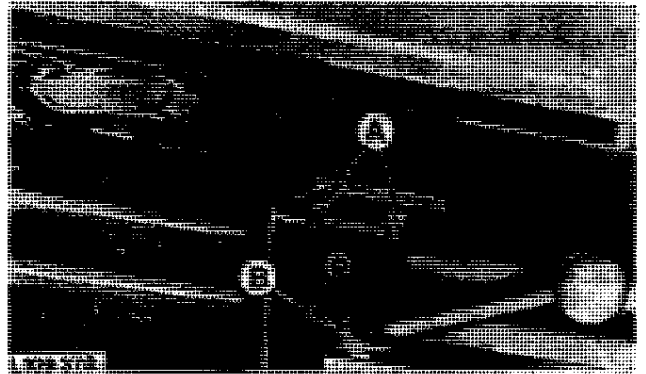
Swing hood upward from the front. Remove quick-lock pin (A) at gas pressure cylinder (B).



L116103-LB31025AE-010888

DISCONNECTING RETAINING BRACKET FROM BATTERY BOX (Tractors With Front Hitch)

Remove attaching nuts (A) from retaining bracket of shut-off cock (B).



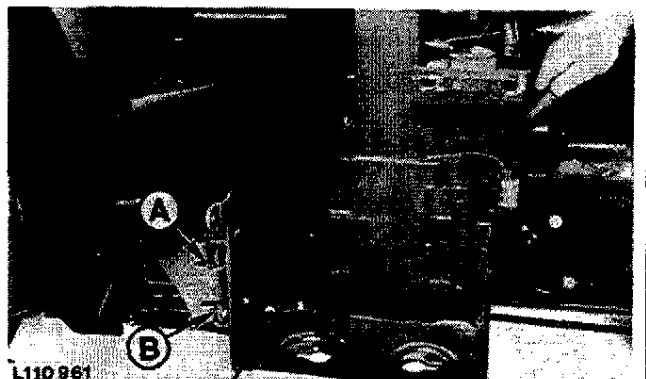
L109378-LB21025AE-010886

REMOVING RIGHT-HAND BATTERY BOX

Tractors With SG2 Cab and Side Frames

Drive spring pin (A) out of rod (B) and remove rod.

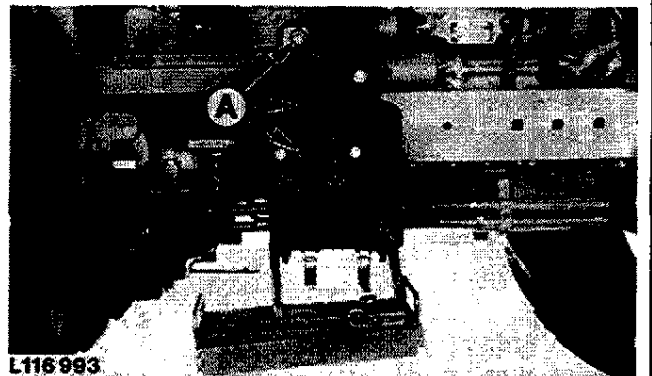
Remove the two attaching nuts holding battery box to side frame.



L110961-LB31025AE-010287

Tractors With MC1 Cab and Side Frames

Remove the three attaching cap screws (A).



L116993-LB31025AE-010287

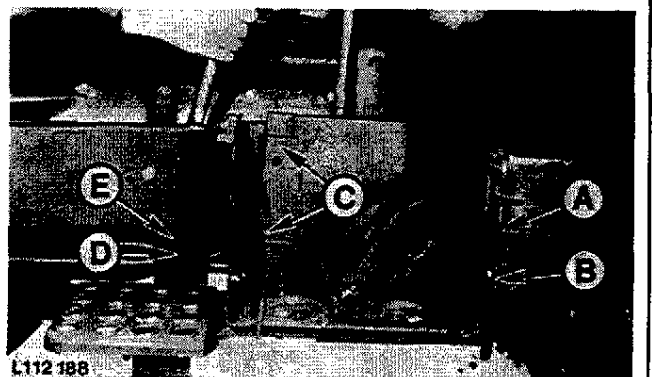
REMOVING LEFT-HAND BATTERY BOX

Tractors With SG2 Cab and Side Frames

Drive spring pin (A) out of rod (B) and remove rod.

Remove the two attaching nuts (C) holding battery box to side frame.

On tractors with front PTO, remove cap screw (D).
Separate step (E) from side frame.

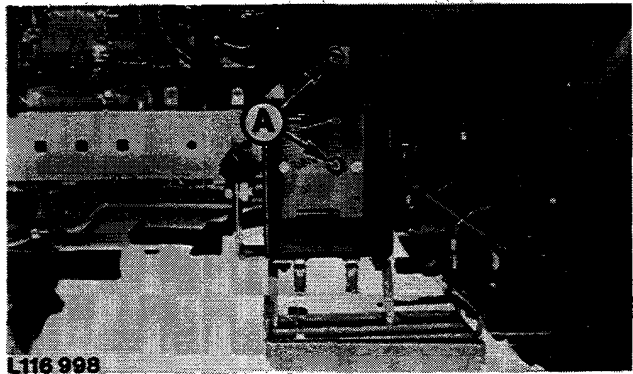


L112188-LB31025AE-010287

Tractor Separation

Tractors With MC1 Cab and Side Frames

Remove the three attaching cap screws (A).

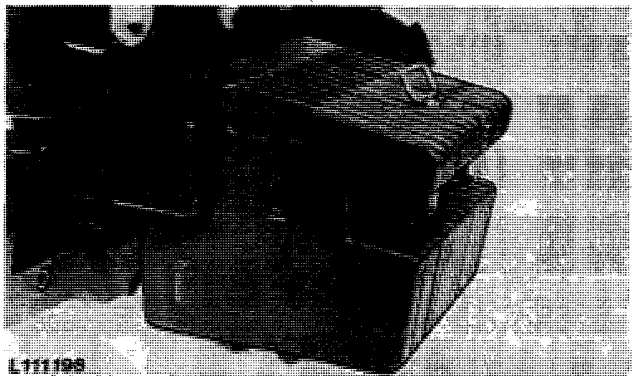


L116998-LB31025AE-010287

REMOVING FRONT WEIGHTS (When Equipped)



CAUTION: Remove front weights to prevent front end of tractor from tilting forwards.



L111198-LA11025AE-260985

DRAINING FUEL

Loosen drain cock (A) and drain fuel out of main tank into a suitable container.

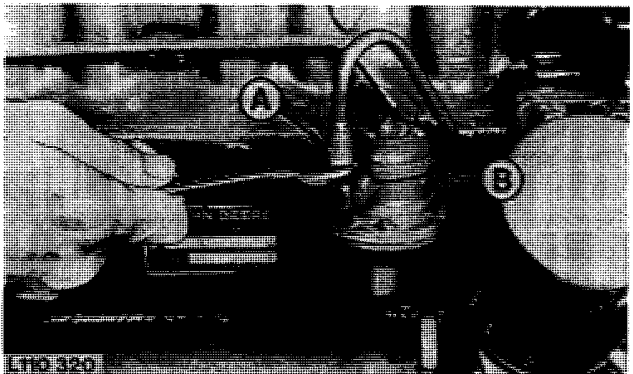
Capacity: 84.0 liters (22.2 U.S. gal.)



L109546-LB31025AE-010287

DISCONNECTING FUEL LINE (Tractors Without Auxiliary Tank)

Disconnect fuel inlet line (A) at fuel transfer pump (B).



L110320-LA61025AE-050585

DISCONNECTING AIR INTAKE LINE

Remove clamping bands (B).

Disconnect air intake line (A) between engine and air cleaner.

NOTE: Seal all openings with plastic caps.

Disconnect oil leak-off and bleed line (C) at oil reservoir.



L116211-LB31025AE-010287

REMOVING CONDENSOR (Tractors with Air Conditioning System)

Remove cap screws (A).

Pull out condensor (B) to the left and place so that it cannot drop down.



L114868-LB21025AE-010886

DRAINING COOLANT AT RADIATOR

Open drain tap (A).
Collect coolant in a suitable container.

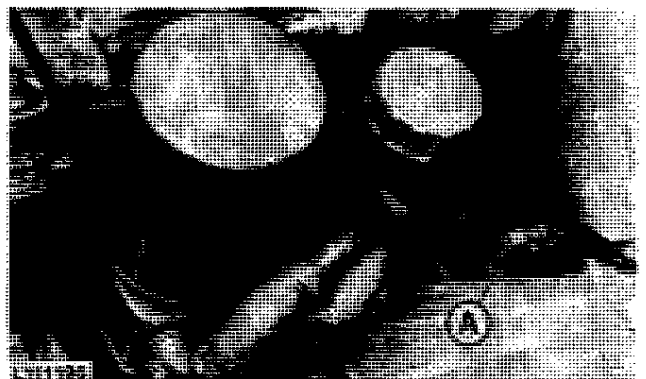
Capacities:

Tractors without cab 13.0 liters (3.4 U.S. gal.)

Tractors with SG2 cab

or MC1 cab* 15.0 liters (4.0 U.S. gal.)

* with heater

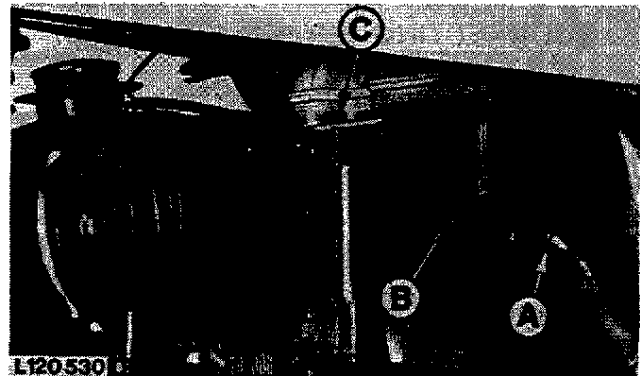


L111196-LB31025AE-010287

REMOVING EXPANSION TANK (When Equipped)

Disconnect coolant hose (A) at expansion tank (B).

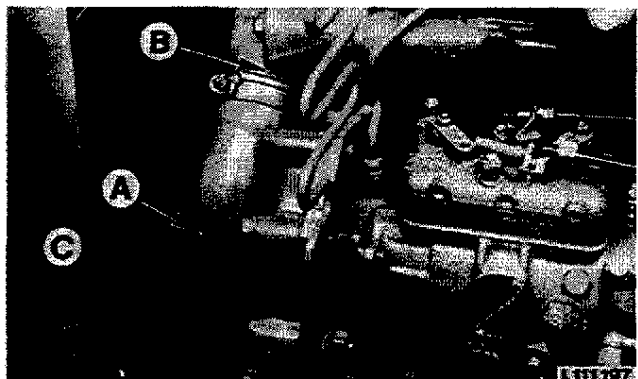
Remove the three attaching cap screws (C) and lift out expansion tank.



L120530-LB31025AE-010888

DISCONNECTING BOTTOM RADIATOR COOLANT HOSE

Disconnect coolant hose (A) at water pump (B) and radiator (C).



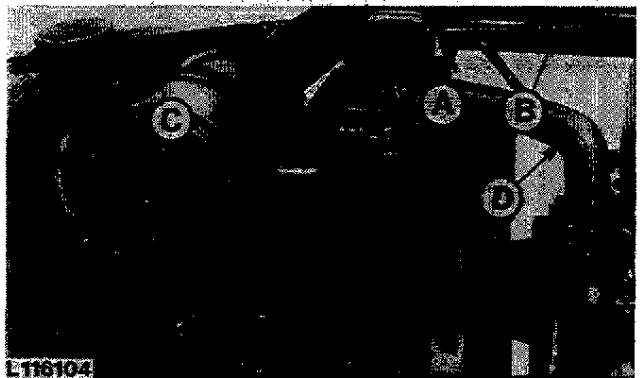
L111197-LA11025AE-041085

DISCONNECTING TOP RADIATOR COOLANT HOSE

Disconnect hose (D) at radiator.
Remove cap screw (A) of radiator support stay (B).
Disconnect fuel return line (C) and breather line (when equipped) at connection to tank.

A-Cap screw
B-Support stay

C-Fuel return line
D-Hose

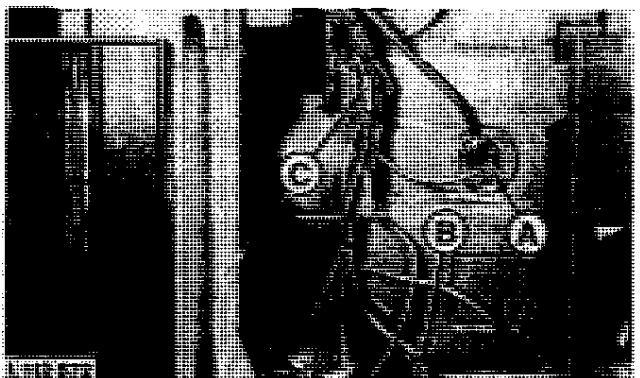


L116104-LB31025AE-010888

DISCONNECTING WIRING HARNESS CONNECTORS

Disconnect cable (A) from fuel gauge sending unit.
Disconnect headlight cable distributor (B).
When equipped, disconnect cable to front PTO solenoid switch at connector (C).
Pull cables to the rear.

NOTE: Mark plugs and connectors for later reinstallation.



L112572-LB21025AE-010886

REMOVING U.J. DRIVE SHAFT ANTI-WRAP GUARD (Tractors with Front Wheel Drive)

A—Anti-wrap guard
B—Universal jointed drive shaft
C—Hex. socket screws

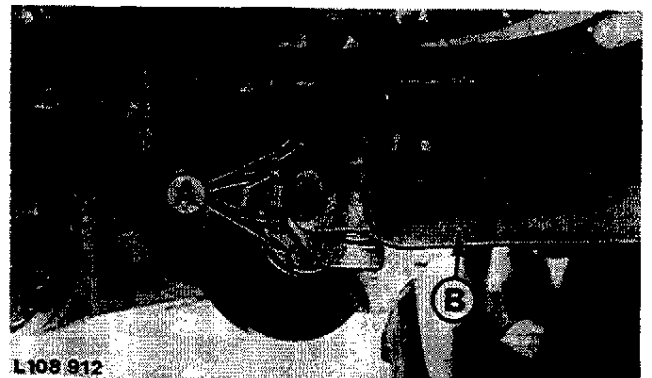


L116583-LB31025AE-010287

REMOVING U.J. DRIVE SHAFT (Tractors With Front Wheel Drive)

Remove attaching nuts (A) from flange of universal jointed drive shaft (B).

Pull universal jointed drive shaft from rear clutch shaft.

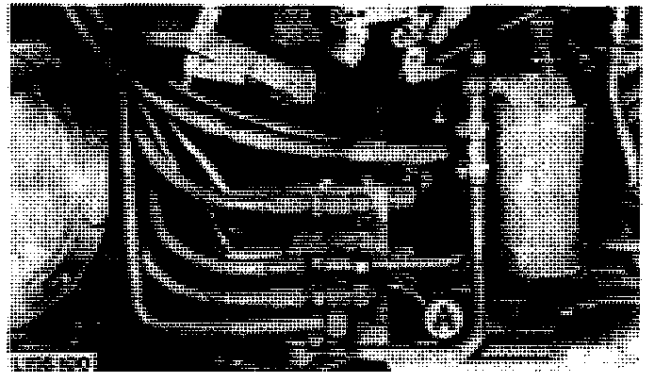


L108912

L108912-LB21025AE-010896

DISCONNECTING PRESSURE LINE TO FRONT HITCH (When Equipped)

Disconnect pressure line (A) at selective control valve.

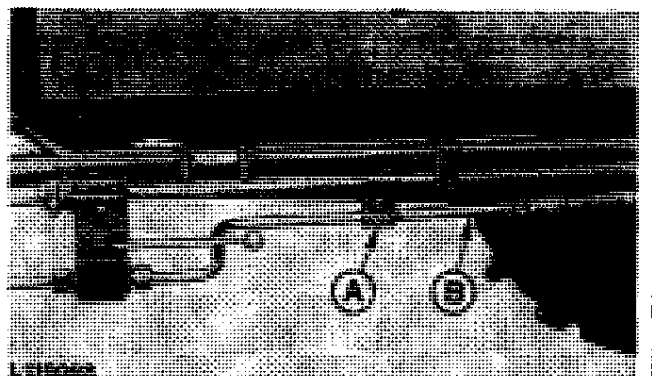


L116100-LB31025AE-010287

REMOVING PRESSURE LINE TO FRONT HITCH (When Equipped)

Remove clamp (A).

Remove pressure line (B) at connection to hose.

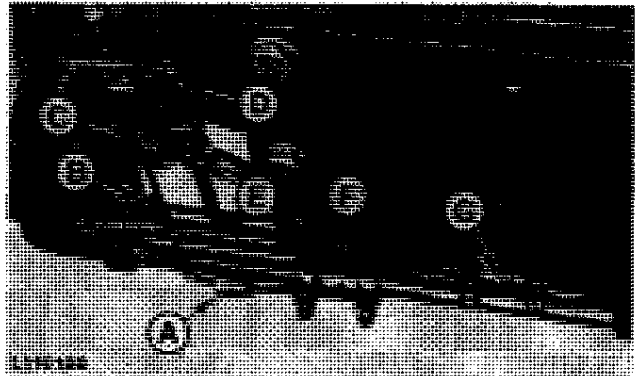


L116098

L116098-LB31025AE-010287

DISCONNECTING HYDRAULIC LINES

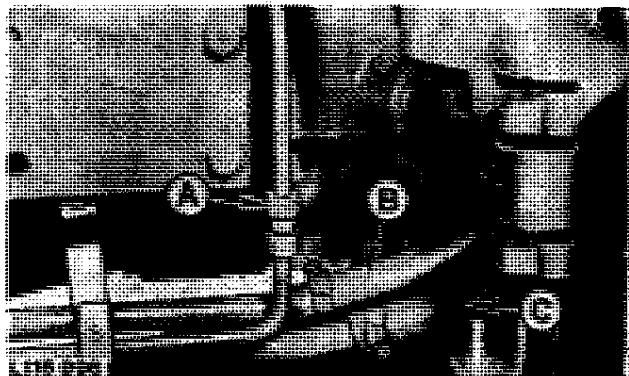
Disconnect brake line (A), when equipped.
Disconnect control line (B), when equipped.
Disconnect pressure line (C).
Remove clamp (D).
Disconnect steering system pressure line (E).
Disconnect return line (F) and inlet line (G).



L110188-LB31025AE-010287

Disconnect steering system pressure line (A), when equipped.
Disconnect fuel inlet line (B), when equipped.
Disconnect hydraulic return line (C), when equipped.

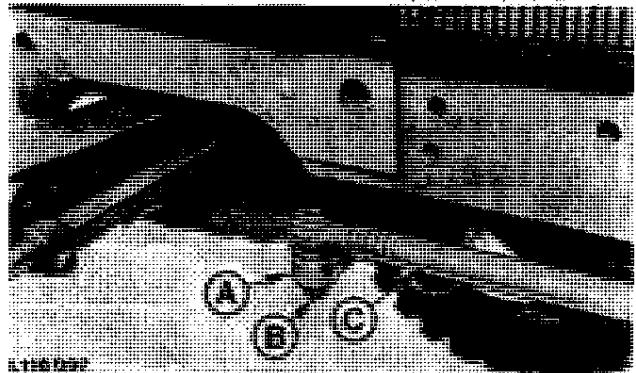
IMPORTANT: Mark lines to facilitate installation.



L116996-LB31025AE-010287

DISCONNECTING DRAG LINK AT STEERING SHAFT ARM (Tractors with Manual or Power Steering)

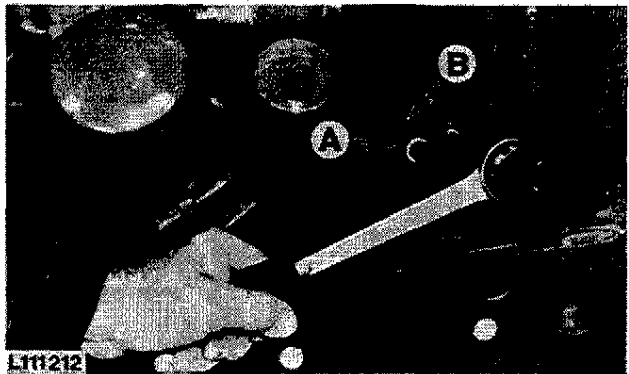
A-Steering shaft arm
B-Slotted nut
C-Drag link



L116097-LB31025AE-010287

DISCONNECTING HYDRAULIC PUMP DRIVE (Pump With Through Drive Shaft)

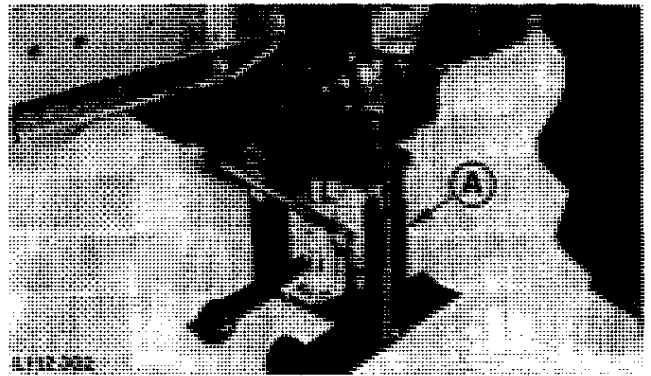
Remove the three hex. socket screws (A) of damper (B).



L111212-LB31025AE-010888

SUPPORTING TRACTOR REAR END

SAFELY position universal support stand JT05725 (A) underneath clutch housing.

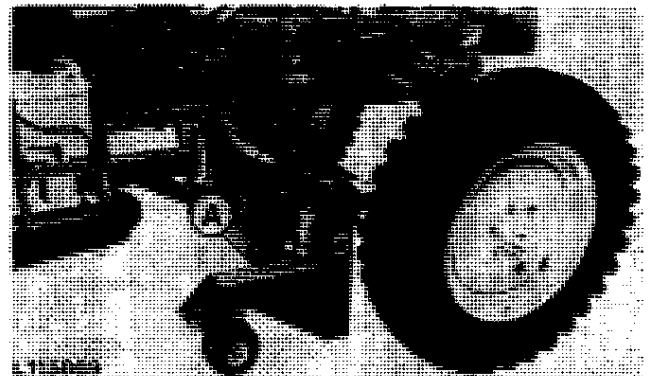


L112302-LB31025AE-010287

POSITIONING SPLITTING STAND

Secure splitting stand JT05724 (A) to front axle carrier or, when equipped, to both side frames.

NOTE: Modify splitting stand supports as shown under "SPECIAL TOOLS (Self-Manufacture)".



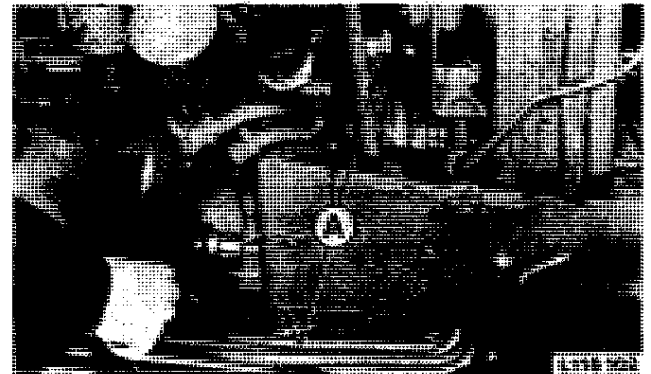
L115869-LB31025AE-010287

REMOVING SCREWS AT FRONT AXLE CARRIER

Tractors Without Increased Lifting Capacity

Remove the eight cap screws (A).

NOTE: Mark shims between front axle carrier and oil pan to facilitate reinstallation.



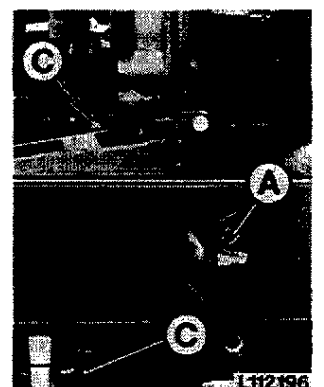
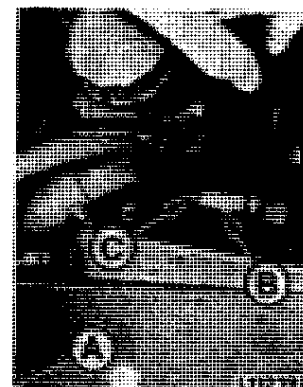
L112197-LB31025AE-010287

Tractors With Increased Lifting Capacity

Remove the two cap screws (A).

Remove the six TORX screws (C) between front axle carrier and engine using socket KJD10133 (B).

NOTE: Mark shims between front axle carrier and oil pan to facilitate reinstallation.

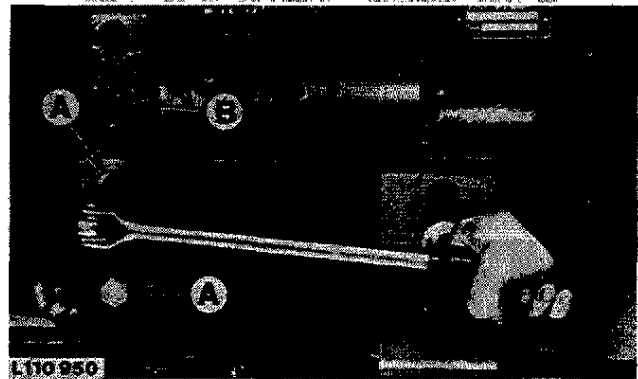


L112197-L112196-LB31025AE-010287

DISCONNECTING SIDE FRAMES (when equipped)

Remove cap screws (A) from both side frames at fly-wheel housing (B).

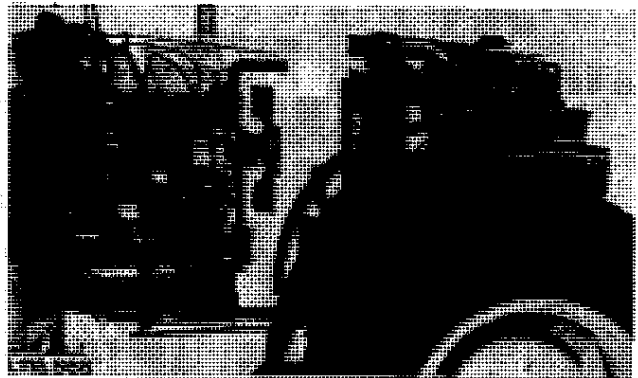
Roll tractor front end forward.



L110950-LB31025AE-010287

INSTALLING TRACTOR FRONT END

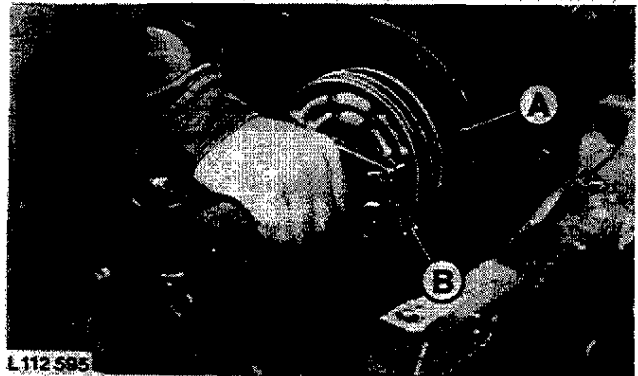
Roll tractor front end towards engine.



L115968-LB31025AE-010287

Position hydraulic pump drive carrier (A) in the rear coupler (on hydraulic pumps without through drive shaft).

NOTE: Make sure that carrier (A) is correctly positioned in front coupler (B) during assembly. There must be no axial tension.

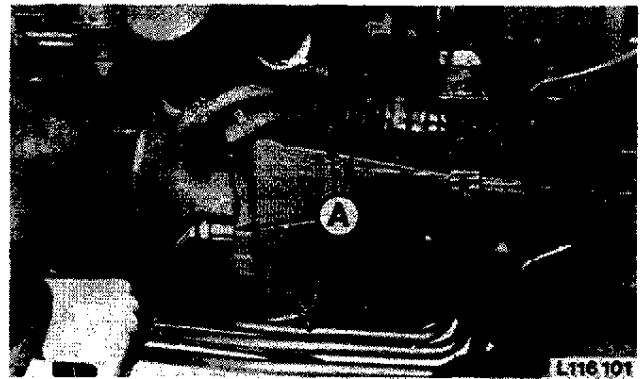
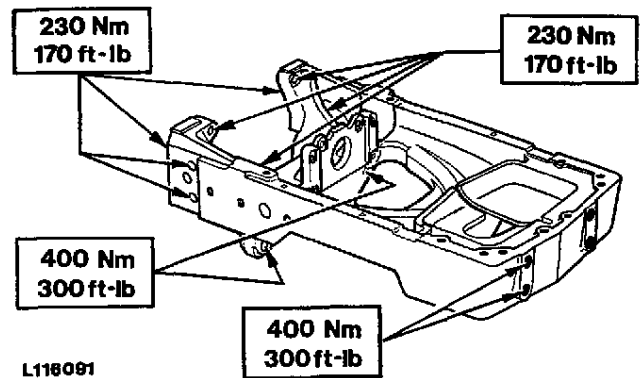


L112595-LB21025AE-010888

SECURING FRONT AXLE CARRIER

Tractors Without Increased Lifting Capacity

First tighten the six cap screws (A).



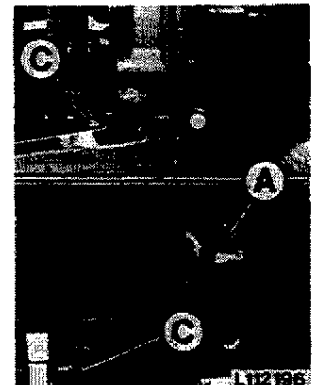
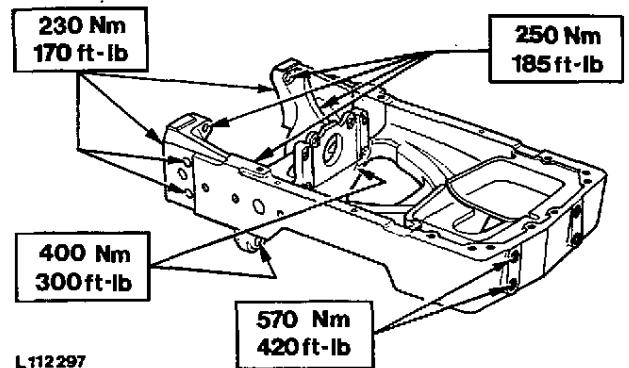
L116091, L116101-LB31025AE-010287

Tractors With Increased Lifting Capacity

NOTE: When re-using TORX screws, coat threads and flange contact surfaces with Molykote grease type "G" (L 81050).

Tighten the two cap screws (A) to 230 Nm (170 ft-lb).

Then tighten the four TORX screws (C) using socket KJD10133 (B).



L112297, L112200, L112196-LB31025AE-010287

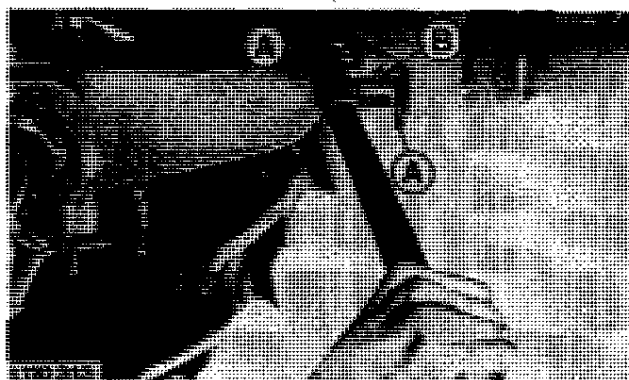
Tractor Separation

On All Tractors

Fit shims (C) in gap between front axle carrier (A) and oil pan (B).

NOTE: When re-using TORX screws, coat threads and flange contact surfaces with Molykote grease type "G" (L 81050).

On tractors with increased lifting capacity, tighten both TORX screws (A) using socket KJD10133 (B).

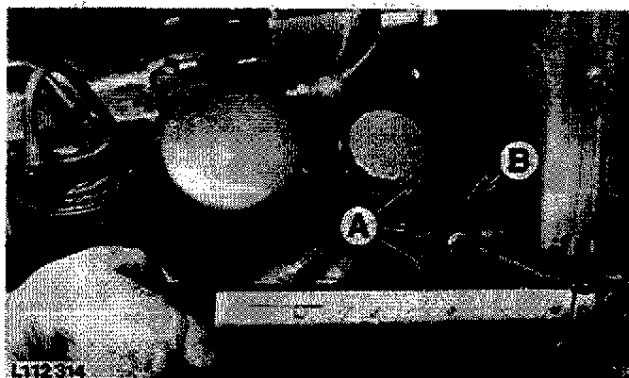


L110306.L110313-LB31025AE-010297

SECURING HYDRAULIC PUMP DRIVE (Pump with Through Drive Shaft)

Tighten the three hex. socket screws (A) to 140 Nm (100 ft-lb).

IMPORTANT: There must be no axial tension in the pump drive (B).

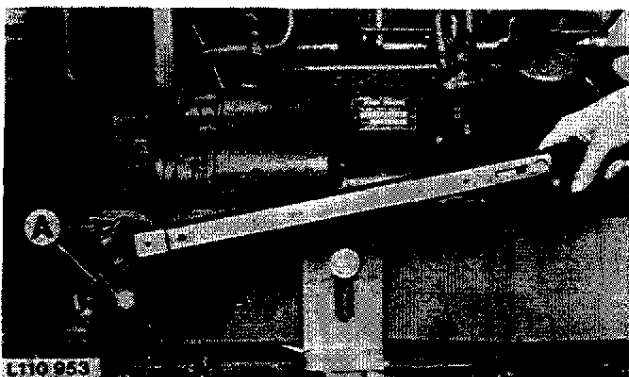


L112314-LB31025AE-010888

SECURING SIDE FRAMES TO FLYWHEEL HOUSING

Tighten both cap screws (A) to 230 Nm (170 ft-lb).

On tractors with front hitch, tighten the cap screws to 335 Nm (245 ft-lb).



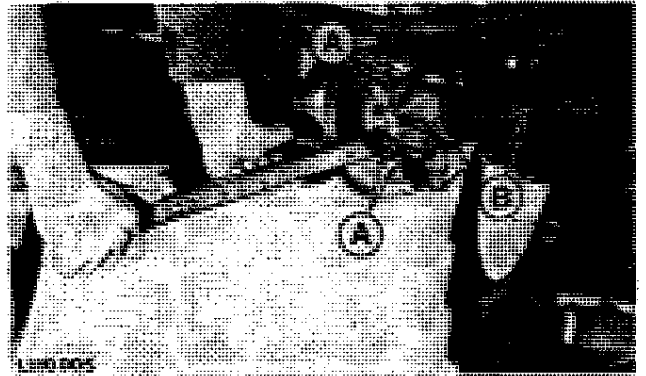
L110953-LA11025AE-001085

INSTALLING UNIVERSAL-JOINTED DRIVE SHAFT (Tractors With Front Wheel Drive)

Tighten attaching nuts (A) to 75 Nm (55 ft-lb).

Reinstall universal-jointed drive shaft anti-wrap guard (when equipped).

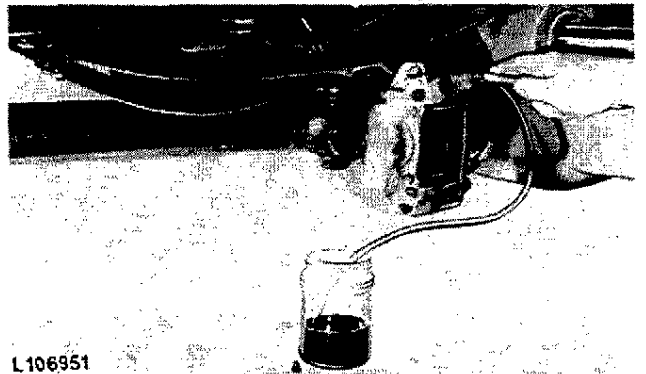
A—Attaching nuts
B—Universal-jointed drive shaft



L110005-LB21025AE-010886

BLEEDING UNIVERSAL-JOINTED DRIVE SHAFT BRAKE (When Equipped)

See Section 60, Group 25.



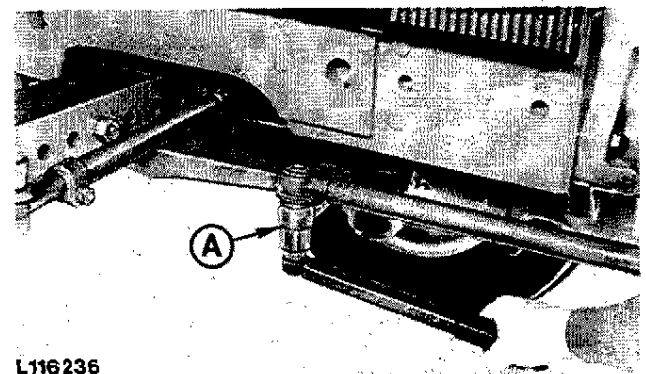
L106951

L106951-LB31025AE-010287

CONNECTING DRAG LINK TO STEERING SHAFT ARM (Tractors with Manual or Power Steering)

Tighten slotted nut (A) to 90 Nm (65 ft-lb) and insert cotter pin.

NOTE: If cotter pin cannot be inserted into slotted nut when tightened to specified torque, tighten nut to next slot and insert cotter pin.



L116236

L116236-LB31025AE-010888

FINAL ASSEMBLY

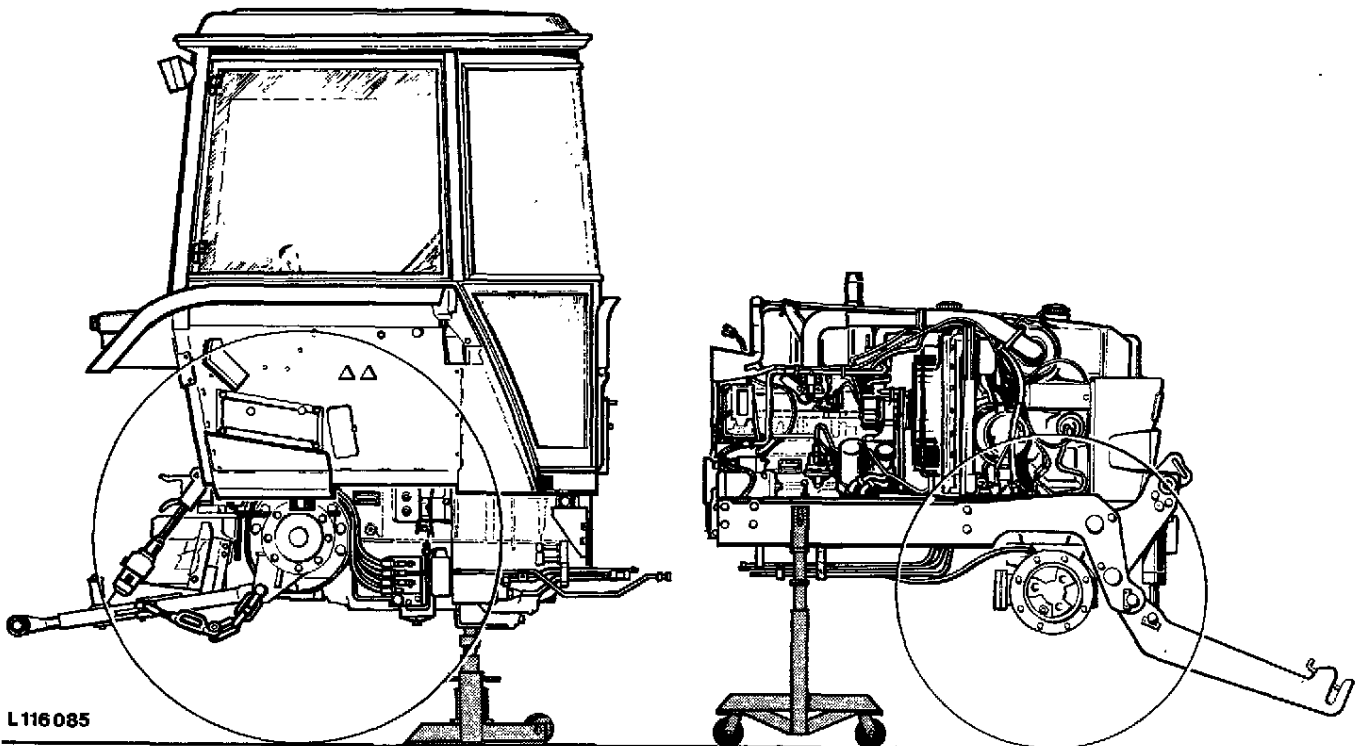
Fill cooling system with coolant. See Group 15 of this section.

Check transmission oil level and top up if necessary. See Group 15 of this section.

IMPORTANT: Connect ground strap of batteries to negative pole.

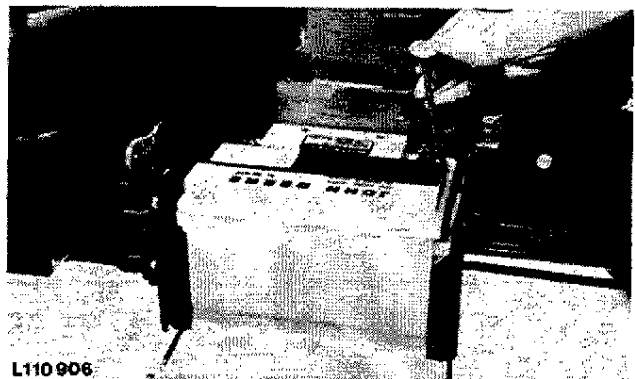
TEILEZ-LA71025FE-000385

SEPARATING BETWEEN ENGINE AND CLUTCH HOUSING



DISCONNECTING BATTERY GROUND STRAPS

Remove batteries.

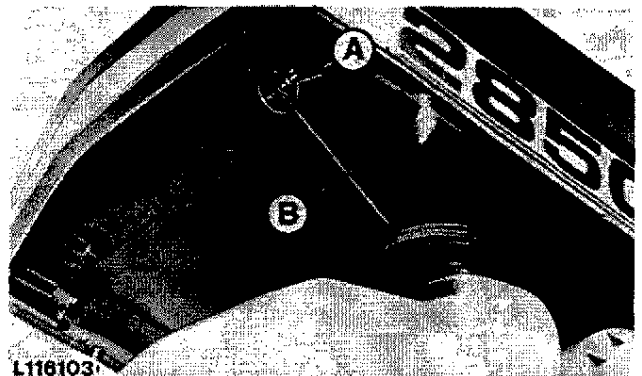


L110906-LA11025AE-260885

REMOVING ENGINE HOOD

Remove exhaust pipe and air precleaner, when equipped.
Remove radiator side plates and grille screens.

Swing hood upward from the front. Remove quick-lock pin (A) at gas pressure cylinder (B).

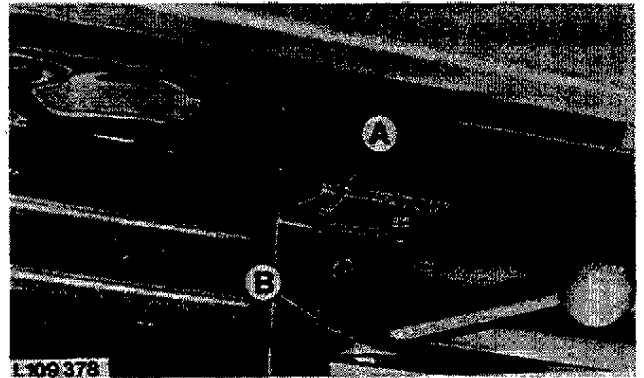


L116103-LB31025AE-010888

Tractor Separation

DISCONNECTING RETAINING BRACKET FROM BATTERY BOX (Tractors With Front Hitch)

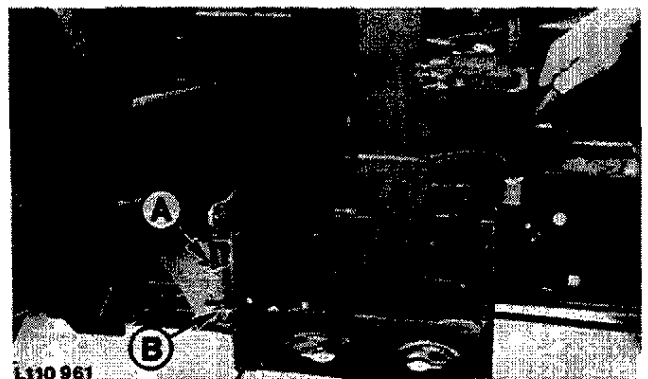
Remove attaching nuts (A) from retaining bracket of shut-off cock (B).



L109378-LA11025AE-001085

REMOVING RIGHT-HAND BATTERY BOX (Tractors With SG2 Cab)

Drive spring pin (A) out of rod (B) and remove rod. Remove both battery box attaching nuts at side frame.

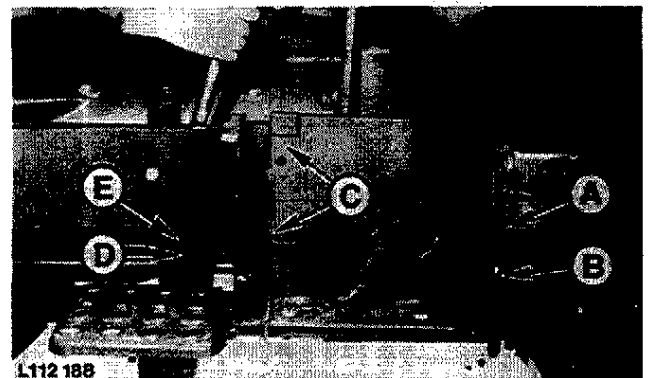


L110961-LB31025BE-010287

REMOVING LEFT-HAND BATTERY BOX (Tractors With SG2 Cab)

Drive spring pin (A) out of rod (B) and remove rod. Remove the two battery box attaching nuts (C) at side frame.

On tractors with front PTO, remove cap screw (D). Separate step (E) from side frame.



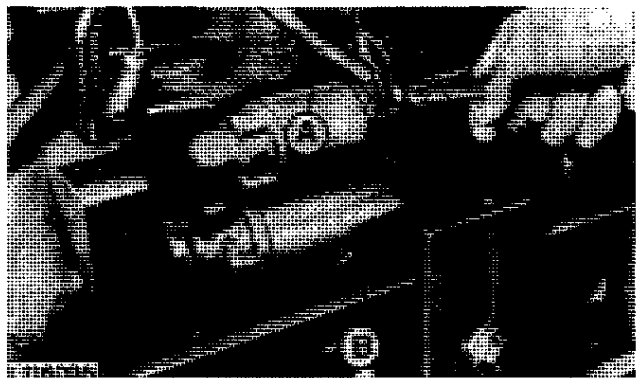
L112188-LB31025BE-010287

DISCONNECTING CABLE AT STARTING MOTOR (Tractors Without Cab or Tractors with MC1 Cab with Batteries in Dash Panelling)



CAUTION: Always disconnect battery ground straps.

A-Cable
B-Starting motor



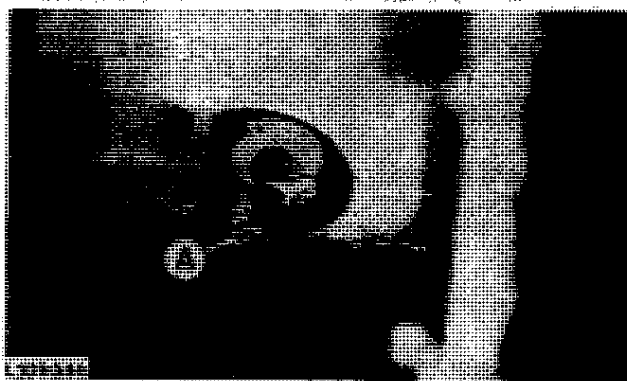
L116096-LB31025AE-010287

Tractor Separation

DRAINING FUEL (Tractors With Auxiliary Fuel Tank Only)

Loosen drain cock (A) and drain fuel out of main tank into a suitable container.

Capacity: 84.0 liters (22.2 U.S. gal.)

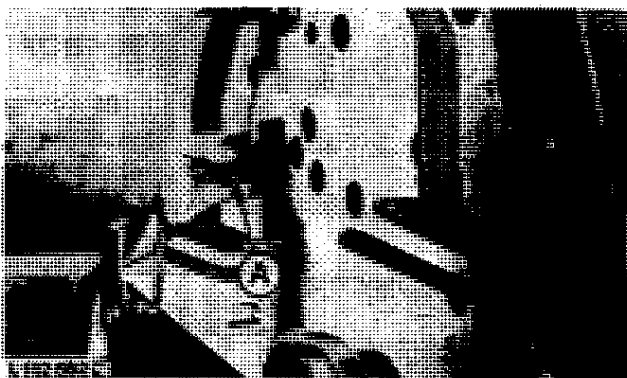


L109546-LB310258E-010287

DISCONNECTING ENGINE WIRING HARNESS AT DASH PANEL

Tractors Without Cab or With SG2 Cab

A—Engine wiring harness



L115933-LB31025AE-010287

Tractors With MC1 Cab

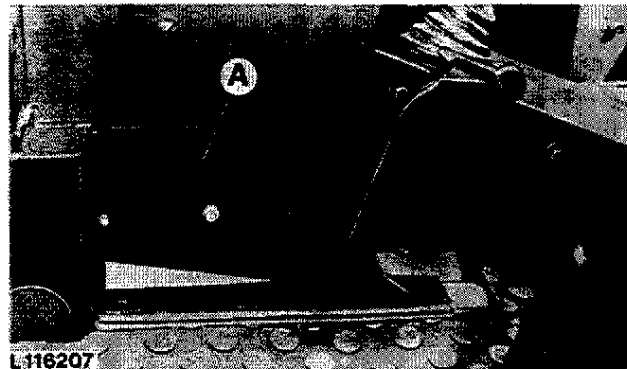
A—Engine wiring harness



L115933-LB31025AE-010287

REMOVING COVER PLATE (Tractors With MC1 Cab)

A—Cover plate



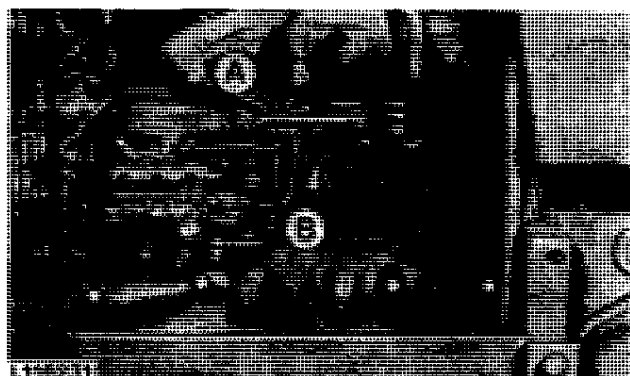
L116207

L116207-LB31025AE-010287

DISCONNECTING ENGINE SHUT-OFF CABLE/REMOVING SPEED CONTROL ROD

Disconnect engine shut-off cable (A) at fuel injection pump and push to the rear.

Disconnect speed control rod (B) at fuel injection pump lever, lift out of rear ball joint and remove.

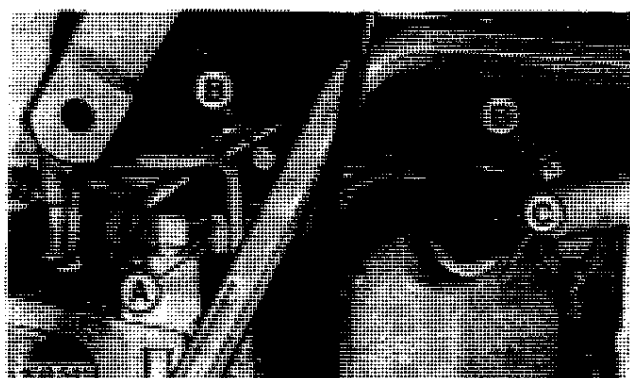


L116231-LB31025AE-010287

DISCONNECTING STEERING LINE BRACKETS (Tractors With SG2 Cab)

Remove cap screw (A) from cylinder head and cap screws (B) from flywheel housing.

A-Cap screw
B-Cap screws
C-Rocker arm cover

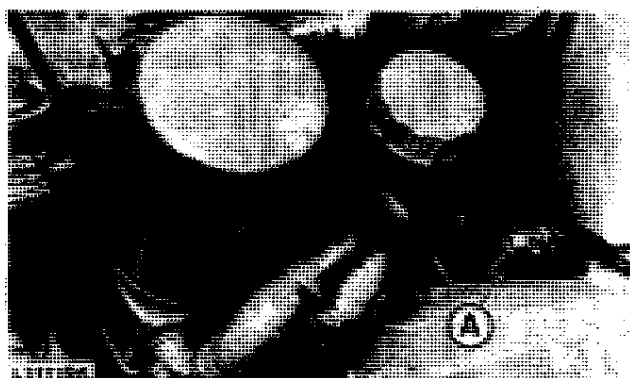


L108541-LB31025AE-010287

DRAINING COOLANT (Tractors With Cab and Heater Only)

Open drain tap (A).
Collect coolant in a suitable container.

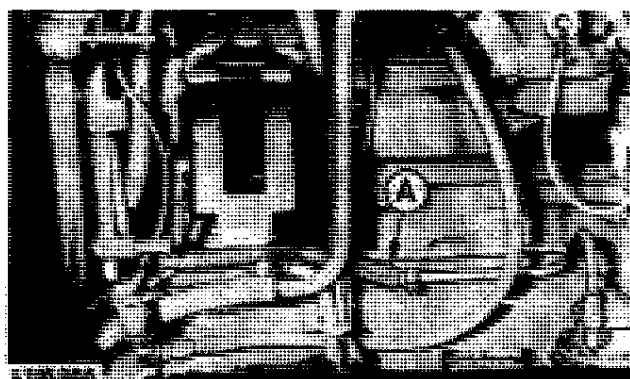
Capacity: 15.0 liters (4.0 U.S. gal.)



L111196-LB31025BE-010287

DISCONNECTING FUEL LINE (Tractors With Auxiliary Tank)

Disconnect fuel line (A) at connector to fuel pipe.

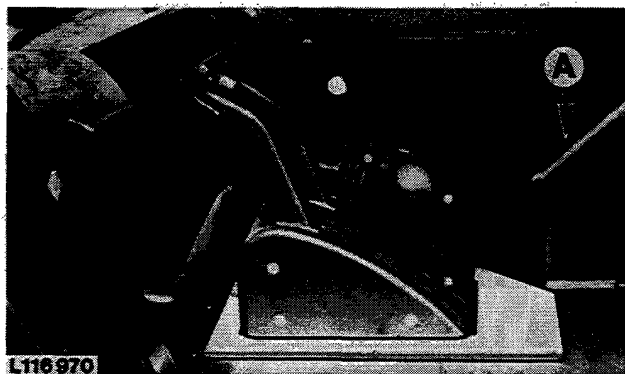


L116996-LB31025AE-010287

Tractor Separation

REMOVING COVER PLATE (Tractors With MC1 Cab)

A—Cover plate



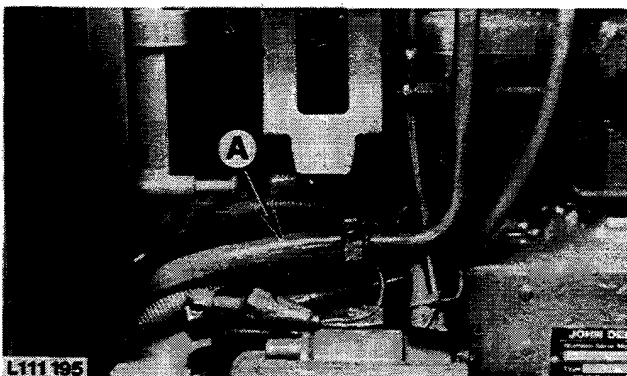
L116970

L116970-LB31025AE-010287

DISCONNECTING HEATER HOSES

Tractors With SG2 or MC1 Cab

Disconnect heater hose (A) at connection to heater pipe.

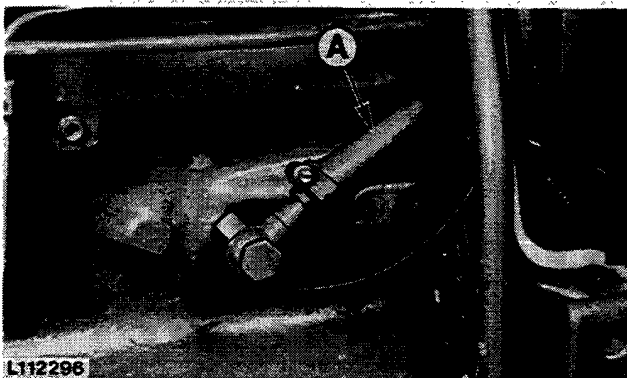


L111195

L111195-LB31025AE-010287

Tractors With SG2 Cab

Disconnect left-hand heater hose (A) at connection to heater pipe.



L112296

L112296-LB31025AE-010287

Tractors With MC1 Cab

Disconnect heater hose (A) at connection to heater pipe.



L116983

L116983-LB31025AE-010287

REMOVING U.J. DRIVE SHAFT ANTI-WRAP GUARD (Tractors With Front Wheel Drive)

A—Anti-wrap guard
B—Universal jointed drive shaft
C—Hex. socket screws

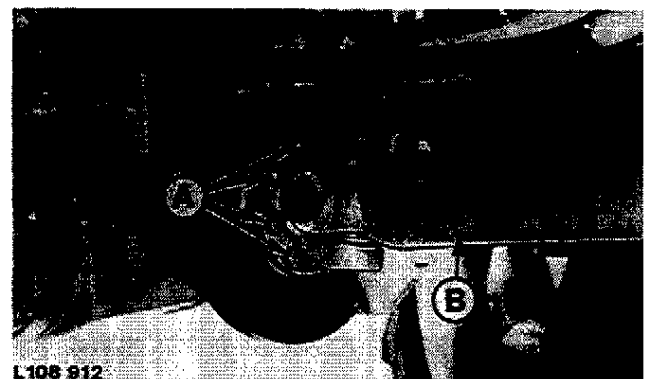


L116583-LB31025AE-010287

REMOVING U.J. DRIVE SHAFT (Tractors With Front Wheel Drive)

Remove attaching nuts (A) from flange of universal jointed drive shaft (B).

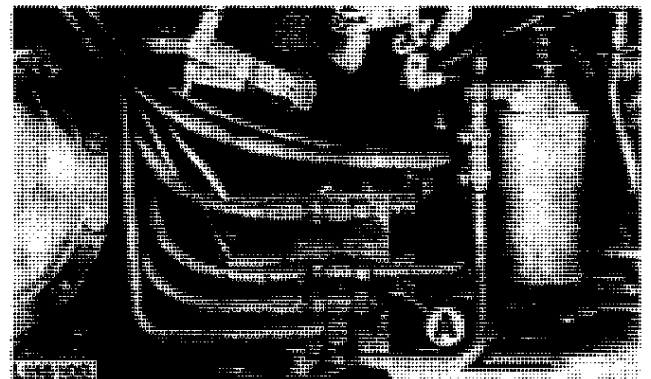
Pull universal jointed drive shaft down from rear clutch shaft.



L108912-LB21025AE-010886

DISCONNECTING PRESSURE LINE TO FRONT HITCH (When Equipped)

Disconnect pressure line (A) at selective control valve.

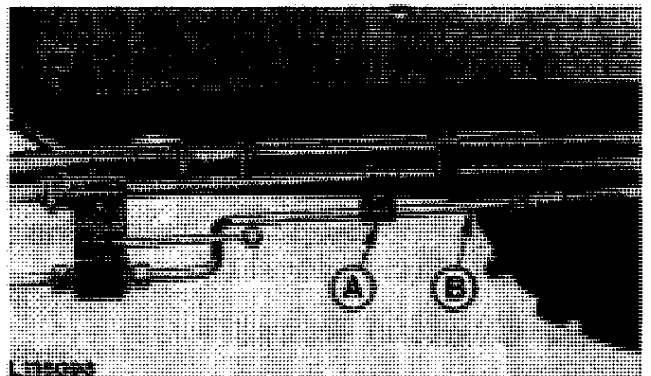


L116100-LB31025AE-010287

REMOVING PRESSURE LINE TO FRONT HITCH (When Equipped)

Remove clamp (A).

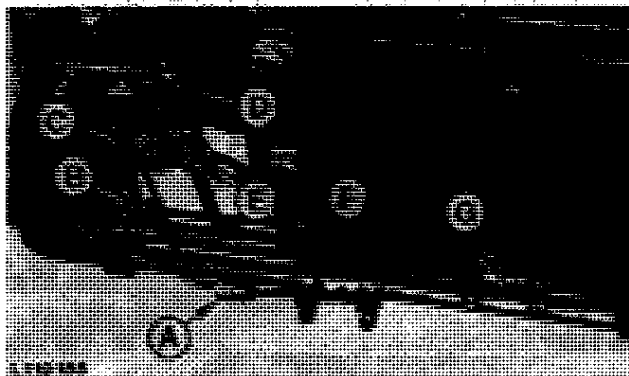
Remove pressure line (B) at connection to hose.



L116098-LB31025AE-010287

DISCONNECTING HYDRAULIC LINES

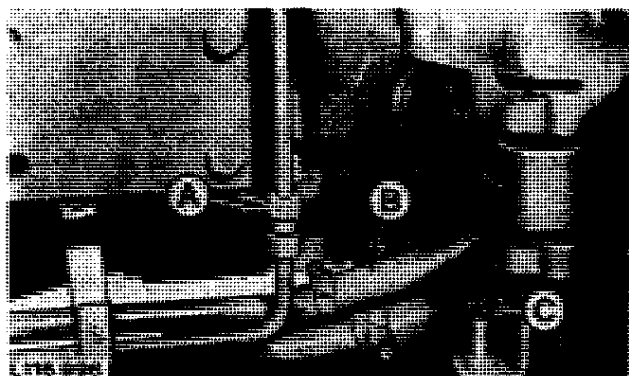
Disconnect brake line (A), when equipped.
Disconnect control line (B), when equipped.
Disconnect pressure line (C).
Remove clamp (D).
Disconnect steering system pressure line (E).
Disconnect return line (F) and inlet line (G).



L110188-LB31025AE-010287

Disconnect steering system pressure line (A), when equipped.
Disconnect fuel inlet line (B), when equipped.
Disconnect hydraulic return line (C), when equipped.

IMPORTANT: Mark lines to facilitate installation.

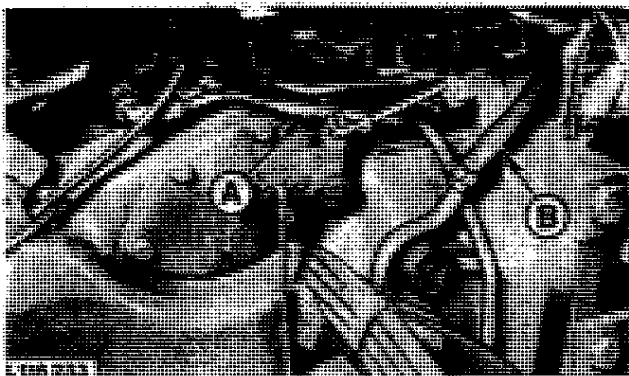


L116996-LB31025AE-010287

REMOVING STEERING SYSTEM PRESSURE LINE (Tractors with Power Steering)

Remove pressure line (A).

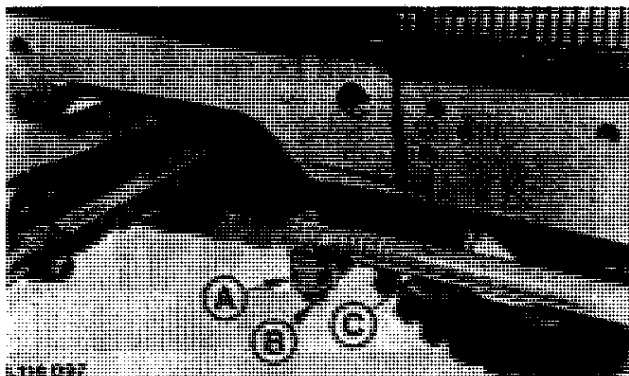
Remove inlet line (B) to brake housing (if equipped).



L116097-LB31025AE-010287

DISCONNECTING DRAG LINK AT STEERING SHAFT ARM (Tractors with Manual or Power Steering)

A—Steering shaft arm
B—Slotted nut
C—Drag link

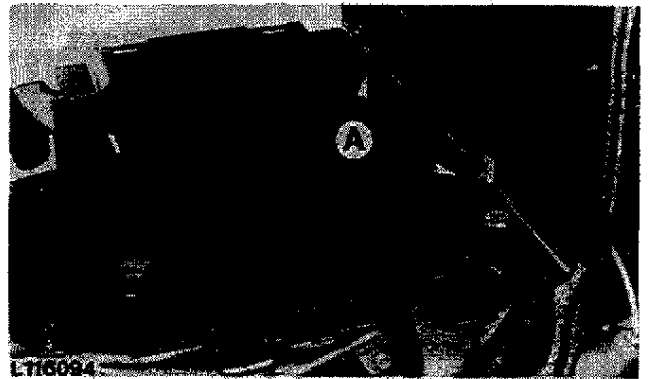


L116097-LB31025AE-010287

Tractor Separation

DISCONNECTING DASH PANEL AT FLY-WHEEL HOUSING (Tractors Without Cab)

Remove cap screws (A).

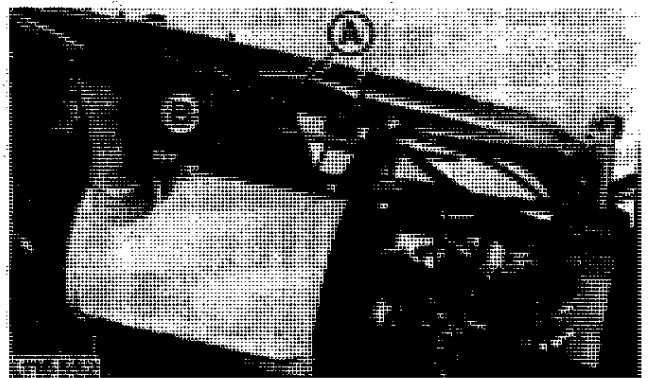


L116094-LB31025AE-000287

DISCONNECTING FUEL LINE (Tractors With Auxiliary Fuel Tank)

Earlier Tractor Series

Disconnect fuel return line (A) at connector (B) and place to the rear.



Later Tractor Series

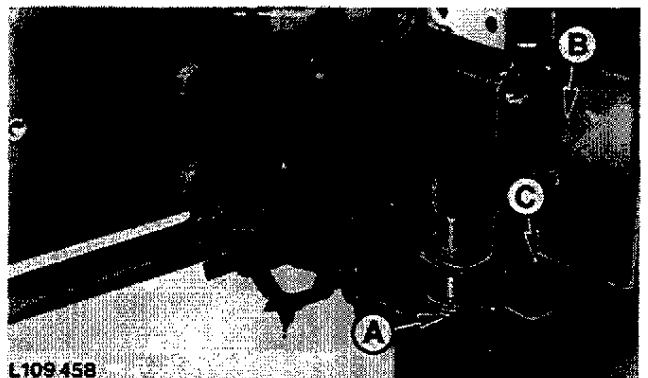
Disconnect breather line and fuel return line at connection to fuel tank and place to the rear.

L116552-LB31025AE-010898

LOWERING AUXILIARY FUEL TANK (Tractors With Air Conditioning System)

Remove cover plate (C).

Remove front attaching screw (A) of fuel tank (B) and lower tank by loosening rear cap screw.



L109458-LA71025AE-180385

DISCONNECTING AIR CONDITIONING SYSTEM REFRIGERANT LINES (When Equipped)

Disconnect refrigerant lines by unscrewing unions (A).

NOTE: No refrigerant is lost when these couplings are disconnected.



CAUTION: The following instructions must be carefully observed when handling refrigerant R-12.

a. Do not expose eyes or skin to liquid refrigerant. Always wear safety goggles when opening refrigerant lines. Liquid refrigerant R-12 has a boiling temperature of approx. -29°C (-21°F); therefore, serious injury may result if liquid refrigerant contacts the eyes or skin. If refrigerant does come into contact with the eye, call a doctor IMMEDIATELY and:

Do not rub the eye. Splash cold water on the eye to gradually raise the temperature of the contacted area.

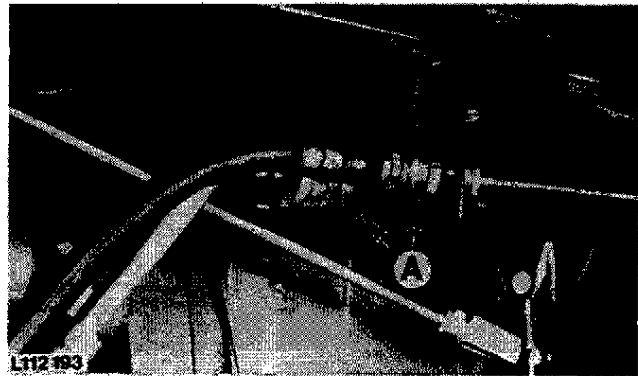
If liquid refrigerant comes into contact with the skin, treat the injury as though it were frozen or frostbitten.

b. Never discharge refrigerant into an area where there is exposed flame. Heavy concentrations of refrigerant R-12 contacting an open flame will produce a poisonous gas.

c. Do not weld or steam clean on an air conditioning system. Excessive pressure could be built up within the system.

d. Before loosening a refrigerant fitting, cover the connection with a cloth.

IMPORTANT: Keep ends of couplers clean to prevent possible contamination or moisture entering the air conditioning system.

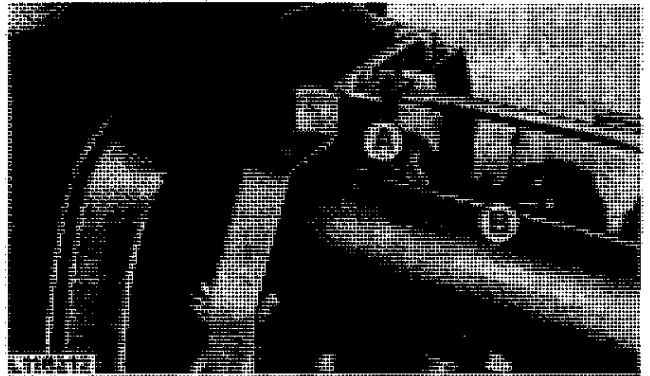


L112193-LA11025AE-001085

Tractor Separation

DISCONNECTING HOOD MOUNTING SUPPORT ADJUSTING ROD

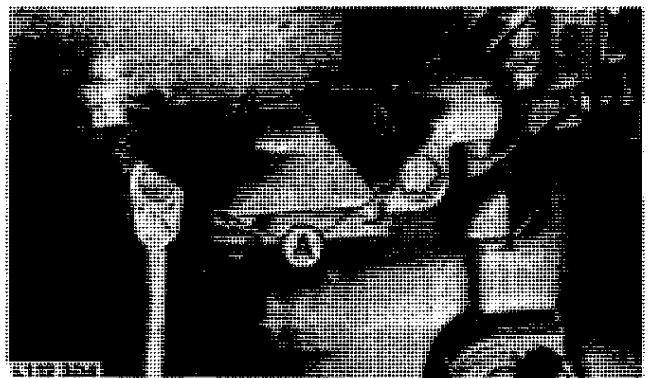
Remove attaching screw (A) of rod (B).



L116212-LB31025AE-010287

DISCONNECTING CLUTCH HOUSING AND OIL PAN

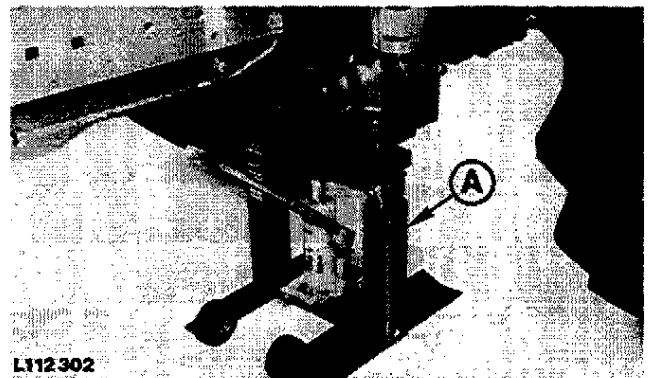
Remove the two cap screws (A).



L112304-LA11025AE-151085

SUPPORTING TRACTOR REAR END

SAFELY position universal support stand JT05725 (A) underneath clutch housing.



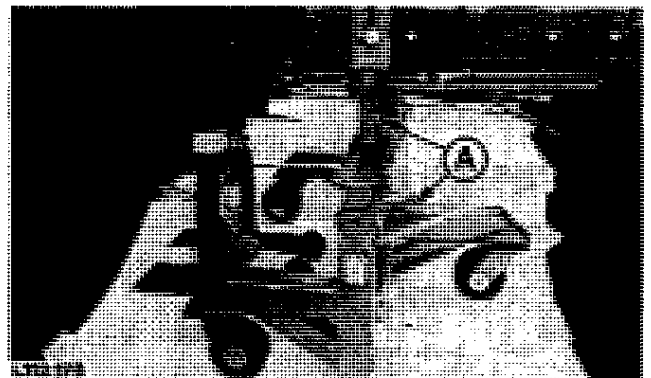
L112302

L112302-LB31025AE-010287

POSITIONING SPLITTING STAND

Secure splitting stand JT05724 (A) to both side frames or to flywheel housing.

NOTE: Modify splitting stand supports as shown under "SPECIAL TOOLS (Self-Manufacture)".



L112304-LA11025AE-151085

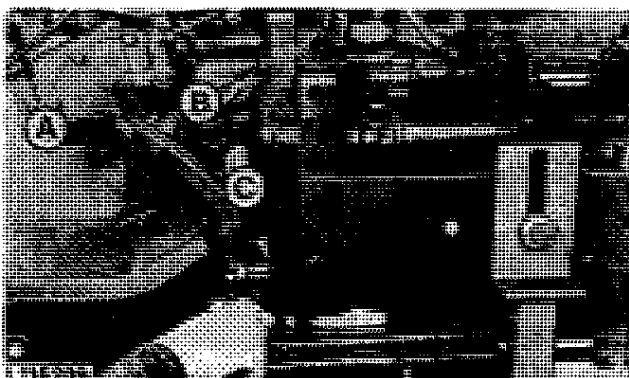
Tractor Separation

REMOVING CAP SCREWS AND HEX. NUTS

Tractors Without Cab

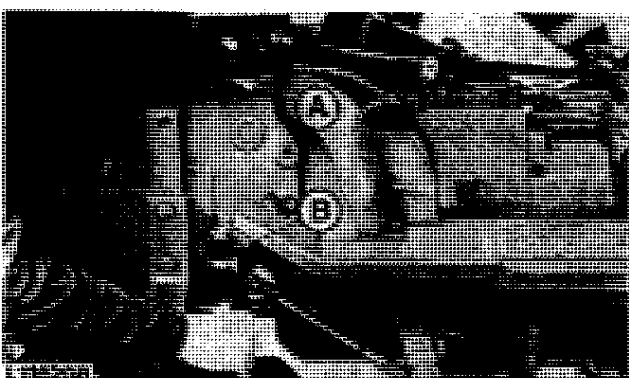
Pull breather hose (A) from shift cover.

A—Breather hose
B—Cap screw
C—Hex. nut



L116209-LB31025AE-010287

A—Hex. nut
B—Cap screw

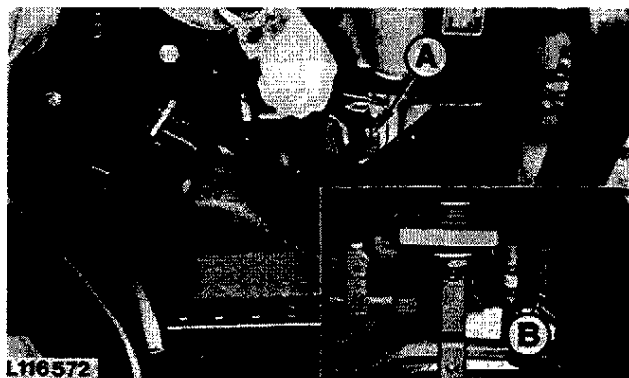


L116208-LB31025AE-010287

Tractors With MC1 Cab

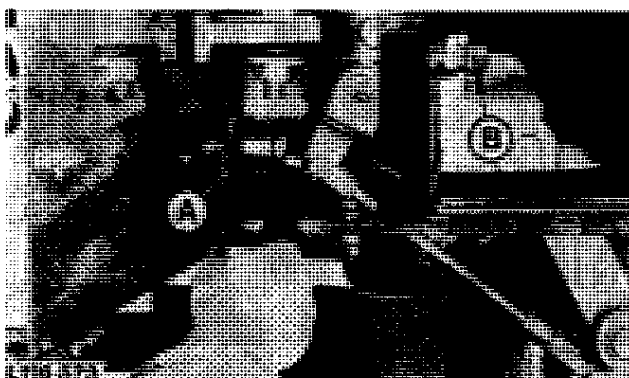
Disconnect breather hose from oil reservoir and push to the rear.

A—Cap screw
B—Hex. nut



L116572-LB31025AE-010287

A—Cap screw
B—Hex. nut

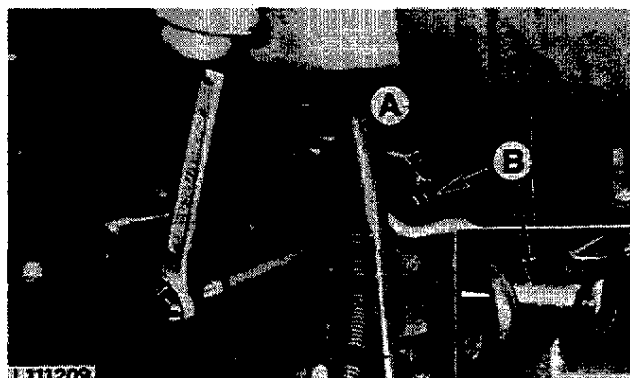


L116572-LB31025AE-010287

Tractor Separation

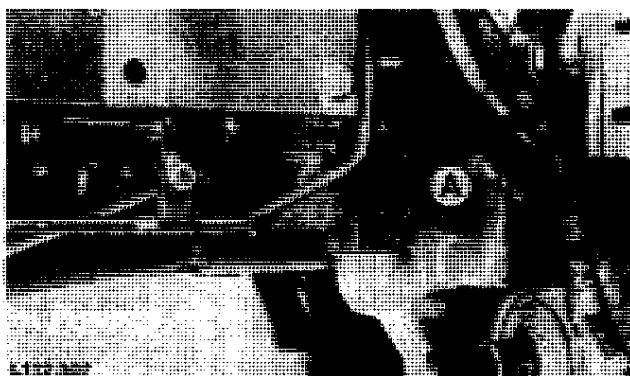
Tractors With SG2 Cab

Using special ring spanner KJD10129 (B), remove upper hex. nut (A).



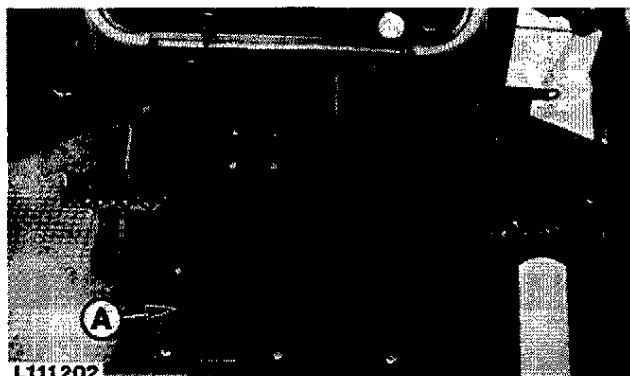
L111209-LB31025AE-010287

Remove lower cap screw (A).



L112307-LA11025AE-151085

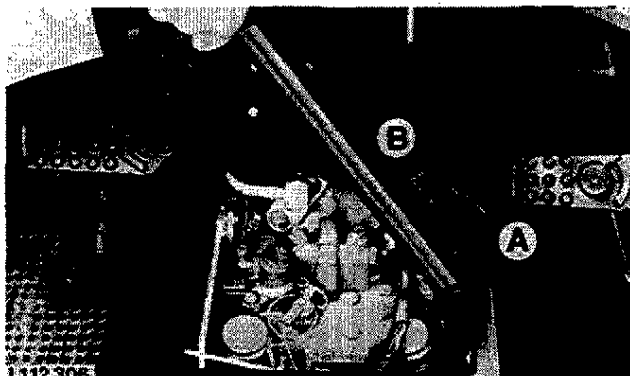
Remove platform plate (A).



L111202-LB31025AE-010287

Remove upper right-hand cap screw (A).

Pull down breather hose (B) from shift cover.



L112306-LB31025AE-010287

Tractor Separation

Remove lower right-hand cap screw (A).



L112312-LB31025AE-010287

All Tractors

Roll tractor front end with engine forward.

IMPORTANT: Move engine exactly in line with drive shaft and hollow drive shaft until these shafts come free of clutch disk and torsion damper or engine clutch.

A-Dowel pin
B-Drive shaft



L116546-LB31025AE-010287

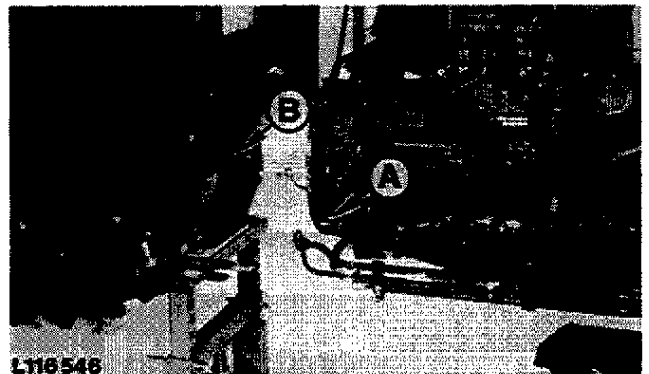
JOINING TRACTOR BETWEEN ENGINE AND CLUTCH HOUSING

Coat splines and bearing journal of solid drive shaft (B) and splines of the hollow drive shaft thinly and uniformly with RENOPLEX grease GLP 2 (L63503).

Move engine towards tractor rear end exactly in line with solid drive shaft (B) and hollow drive shaft.

Using rotating tool JDE-83 (C), align teeth of clutch disk and torsion damper to splines of both shafts.

Applying uniform pressure, move engine until it evenly contacts clutch housing, at the same time guiding both flywheel housing dowel pins (A) and stud into clutch housing bores.

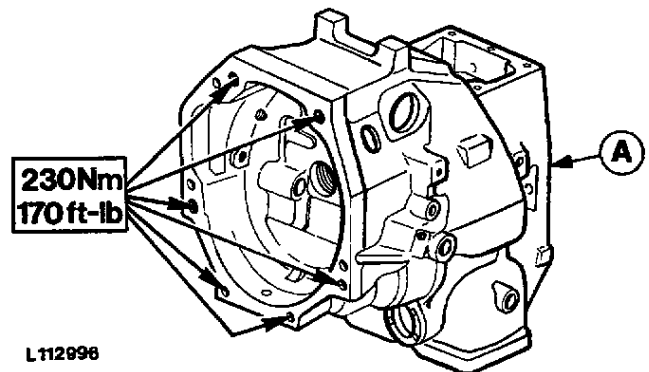


L116546, L109751-LB31025AE-010888

TORQUES FOR HARDWARE BETWEEN ENGINE AND CLUTCH HOUSING

IMPORTANT: Make sure that flywheel housing is flush against clutch housing before tightening cap screws.

A—Clutch housing



L112996-LB31025AE-000287

Tractors Without Cab

Complete assembly, reversing removal procedure.

A—Cap screws
B—Hex. nuts



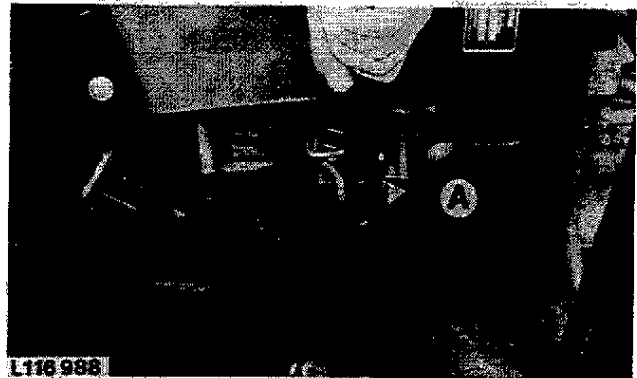
L116210-LB31025AE-010287

Tractor Separation

Tractors With MC1 Cab

Complete assembly, reversing removal procedure.

A—Cap screw

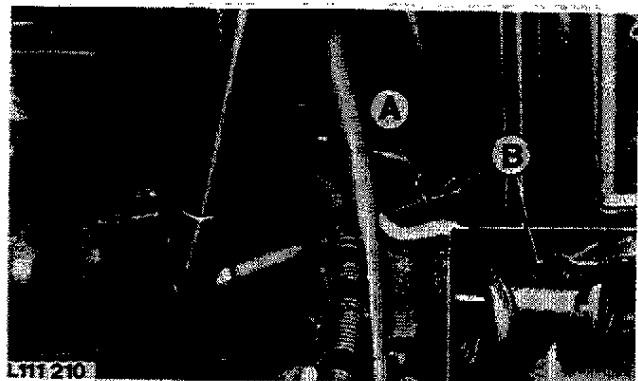


L116988-LB31025AE-010287

Tractors With SG2 Cab

Using special ring spanner KJD10129 (A), tighten the upper left-hand cap screw (B).

Complete installation, reversing removal procedure.



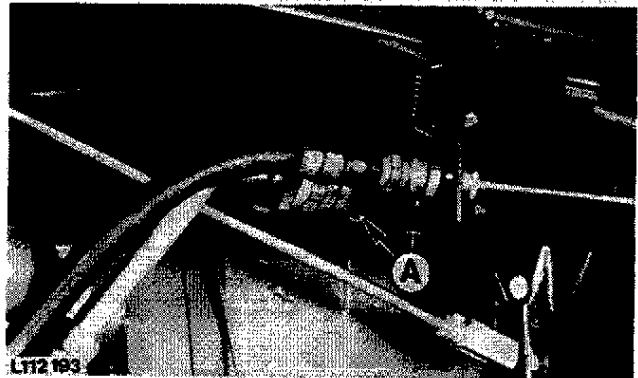
L111210-LB31025AE-010287

CONNECTING REFRIGERANT LINES (When Equipped)



CAUTION: The safety precautions described under "DISCONNECTING AIR CONDITIONING SYSTEM REFRIGERANT LINES" should be carefully observed whenever handling refrigerant R-12.

Apply refrigerator oil to line ends (A) directly before reconnecting the lines.



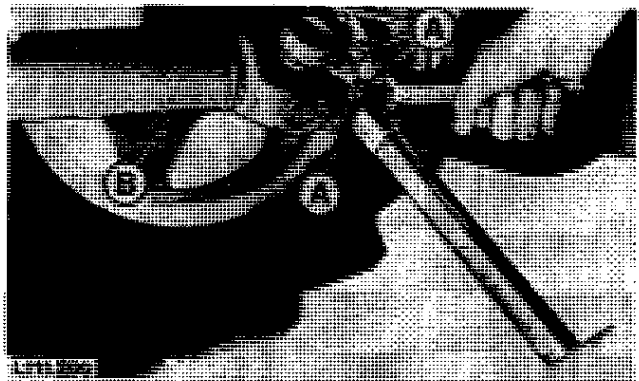
L112193-LB31025AE-010287

INSTALLING UNIVERSAL-JOINTED DRIVE SHAFT (Tractors With F.W.D.)

Tighten attaching nuts (A) to 75 Nm (55 ft-lb).

Reinstall universal jointed drive shaft anti-wrap guard.

A—Attaching nuts
B—Universal-jointed
drive shaft



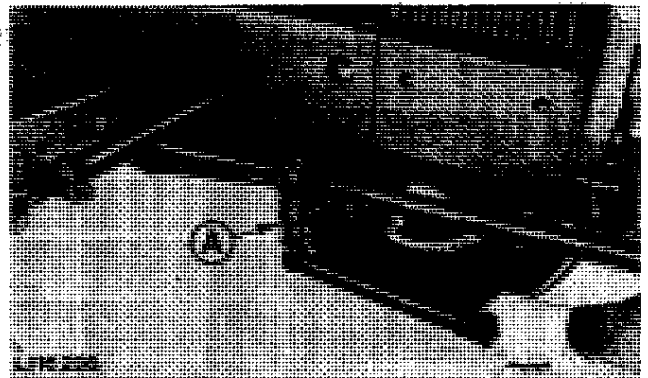
L111200-LA11025AE-001085

Tractor Separation

CONNECTING DRAG LINK TO STEERING SHAFT ARM (Tractors with Manual or Power Steering)

Tighten slotted nut (A) to 90 Nm (65 ft-lb) and insert cotter pin.

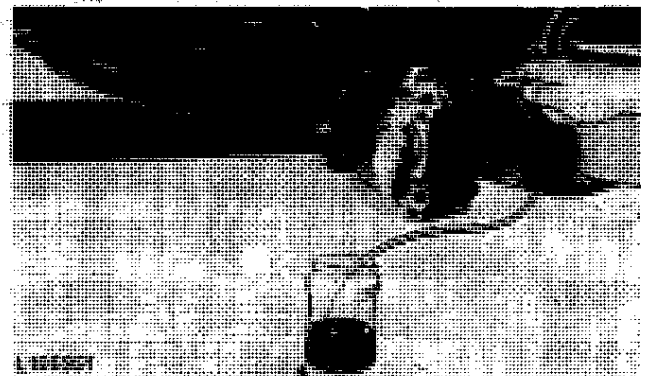
NOTE: If cotter pin cannot be inserted into slotted nut when tightened to specified torque, tighten nut to next slot and insert cotter pin.



L116236-LB31025AE-010888

BLEEDING UNIVERSAL-JOINTED DRIVE SHAFT BRAKE (When Equipped)

See Section 60, Group 25.

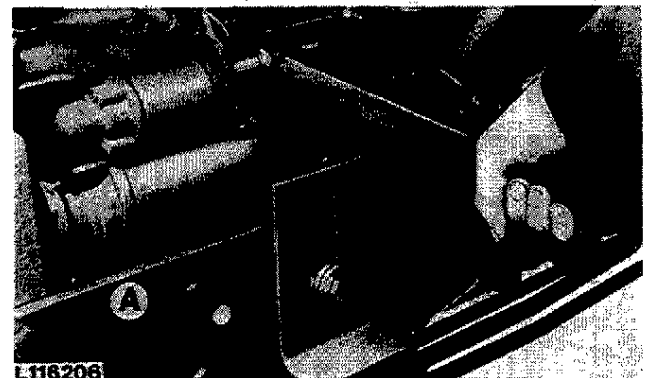


L108951-LB31025AE-010287

SECURING CABLE TO STARTING MOTOR (Tractors Without Cab or Tractors With MC1 Cab With Batteries in Dash Panelling)

Tighten hex. nut to 30 Nm (23 ft-lb).

A-Starting motor



L116206

L116206-LB31025AE-010287

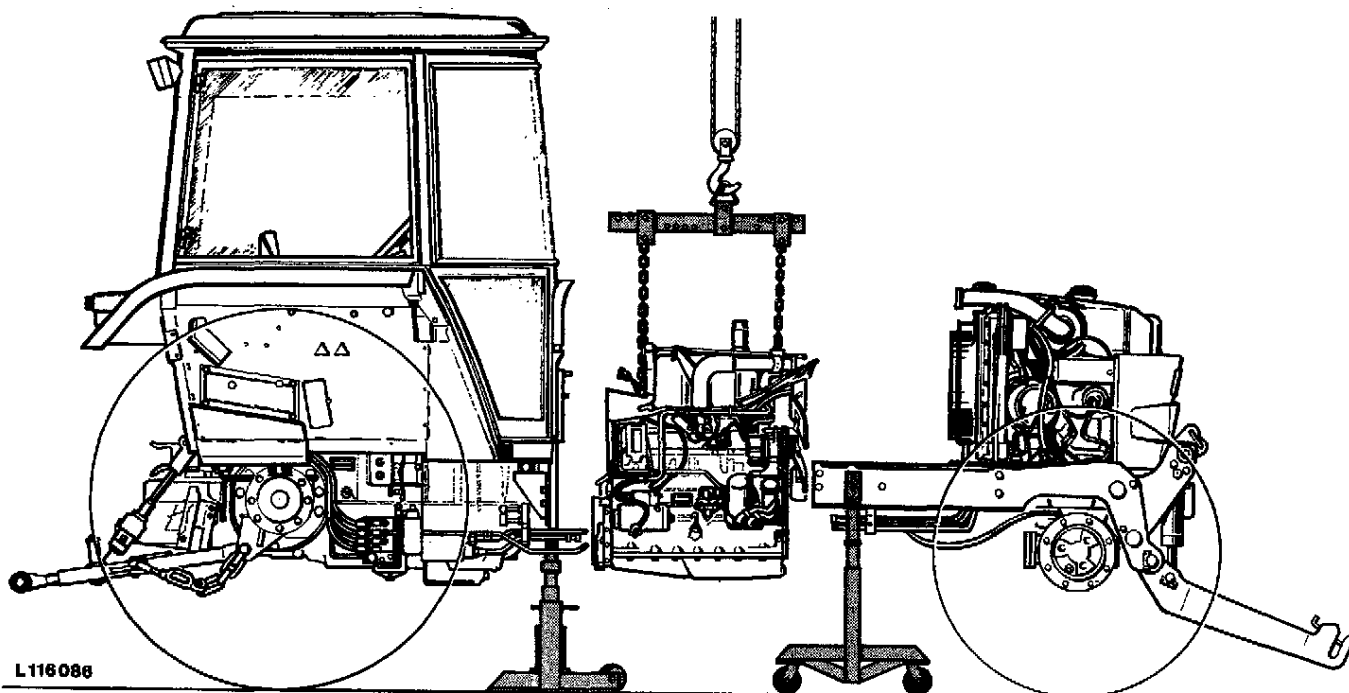
FINAL ASSEMBLY

Bleed fuel system (see Group 15).
Fill cooling system with coolant (see Group 15), open heater control (when equipped) and run engine. Top up with coolant up to marking plate in radiator or to above "MIN" mark in expansion tank.

IMPORTANT: Connect ground straps of both batteries to negative poles.

TEILEZ-LB31025CE-010888

REMOVING ENGINE



L116086-LB31025AE-010287

SEPARATING BETWEEN ENGINE AND CLUTCH HOUSING

Refer to "Separating Between Engine and Clutch Housing".

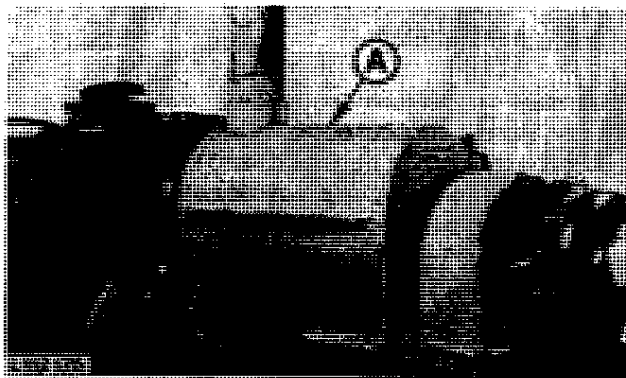
Disconnect battery ground straps.



L110906-LA110259E-151085

REMOVING MUFFLER

Remove muffler (A).

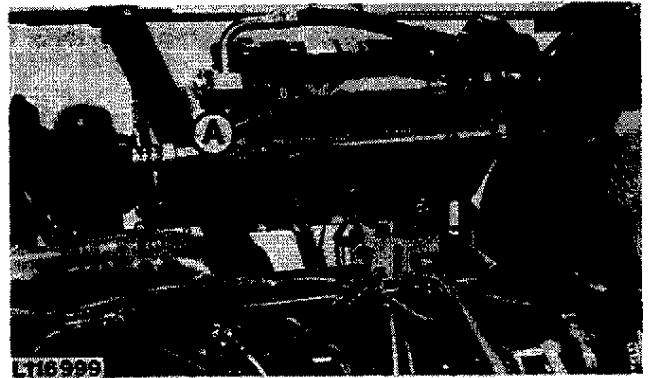


L112175-LA11025AE-151085

Tractor Separation

REMOVING COMPRESSOR (Tractors with Air Conditioning System)

Remove compressor (A) complete with hoses and condensor.

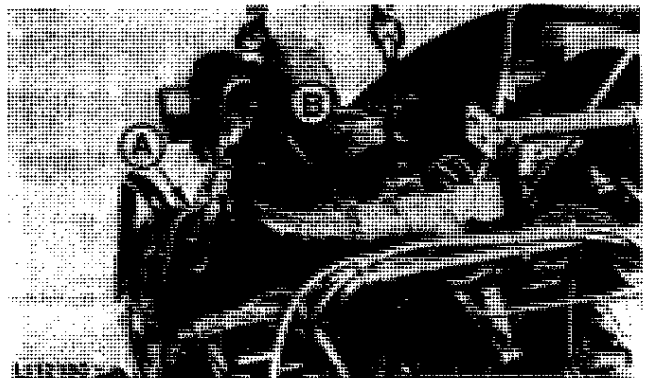


L116999-LB31025AE-010287

ATTACHING LIFTING EYES TO CYLINDER HEAD

A-Lifting eye JD-244-1
B-Lifting eye JD-244-2

Attach engine to a suitable lifting device. Remove tractor front end (refer to "Removing Tractor Front End").

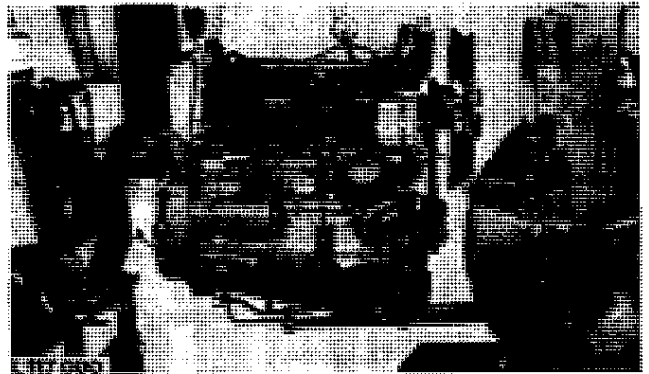


L112180-LA11025AE-151085

INSTALLING ENGINE

Install engine, reversing removal procedure.

NOTE: If engine has been overhauled, carry out tune-up as described in Group 20.

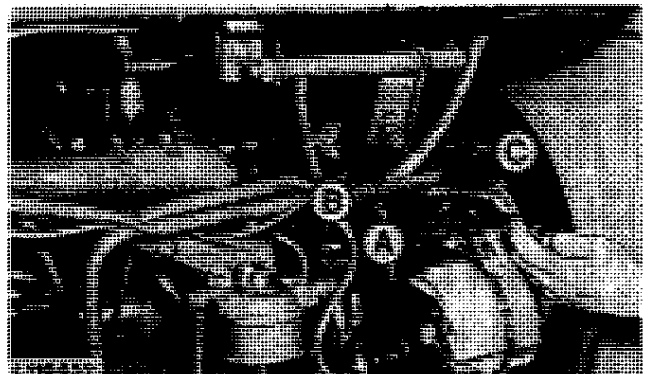


L117000-LB31025AE-010287

INSTALLING COMPRESSOR (Tractors with Air Conditioning System)

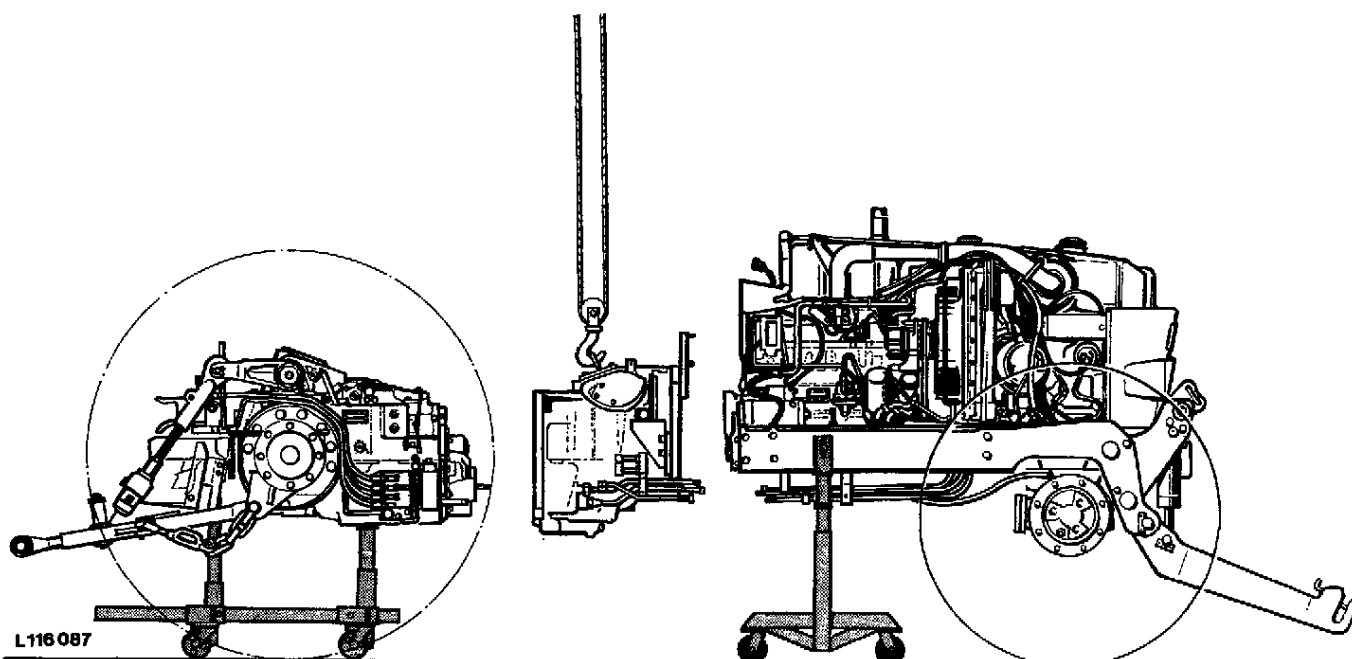
Using belt tension gauge JDST-28 (A), check tension of compressor V-belt.

Adjust V-belt (C) tension by means of tensioner screw (B). V-belt should have 19 mm (3/4 in.) flex with 60 N (13 lb) pull midway between crankshaft and compressor.



L116652-LB31025AE-010287

REMOVING CLUTCH HOUSING

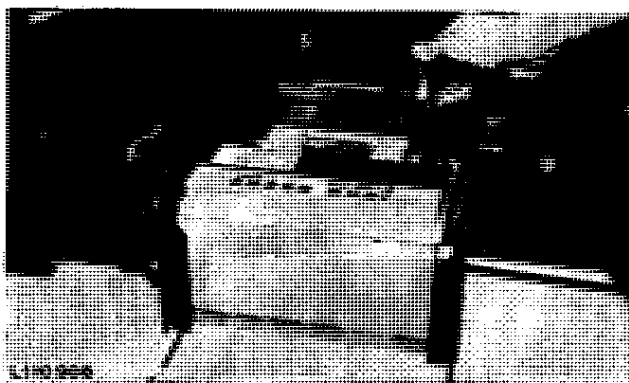


L116087-LB31025AE-010287

REMOVING OPERATOR'S CAB (When Equipped)

Refer to "Removing SG2 or MC1 Cab".

Disconnect battery ground straps.

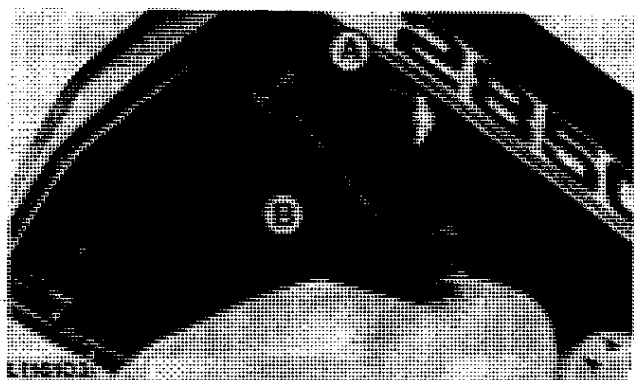


L110906-LB31025BE-010287

REMOVING ENGINE HOOD

Remove exhaust pipe and air precleaner, when equipped.
Remove radiator side plates and grille screens.

Swing hood upward from the front. Remove quick-lock pin (A) at gas pressure cylinder (B).



L116103-LB31025AE-010888

REMOVING TRANSMISSION

Refer to "Removing Transmission".

NOTE: *Rear wheels, final drives and rockshaft can remain attached.*

TEILEZ-LA71025E-120385

DISCONNECTING DASH PLUG (Tractors Without Cab)

A—Engine wiring harness

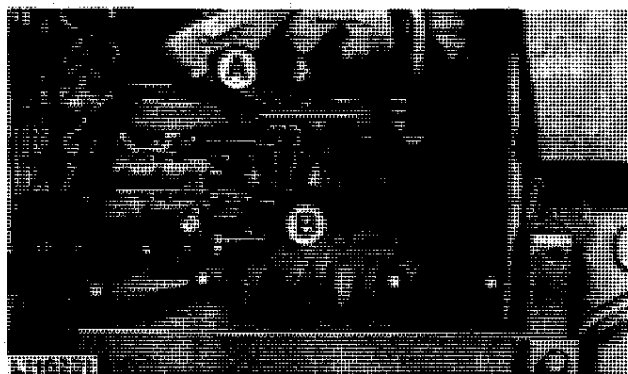


L112582-LB31025AE-010287

DISCONNECTING ENGINE SHUT-OFF CABLE

Disconnect engine shut-off cable (A) at fuel injection pump and push to the rear.

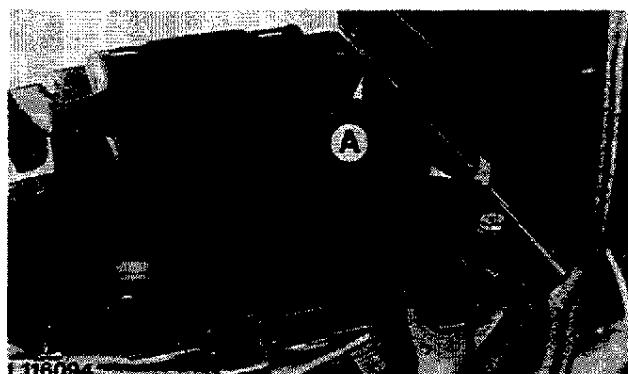
Disconnect speed control rod (B) at fuel injection pump lever.



L116231-LB31025BE-010287

DISCONNECTING DASH PANEL AT FLYWHEEL HOUSING (Tractors Without Cab)

Remove cap screws (A).



L116094-LB31025AE-010287

Tractor Separation

REMOVING DASH PANEL (Tractors Without Cab)

Disconnect steering system hydraulic lines (B).

Remove the four attaching screws (A) of steering column.

Plug open ends of all hydraulic lines with plastic plugs.

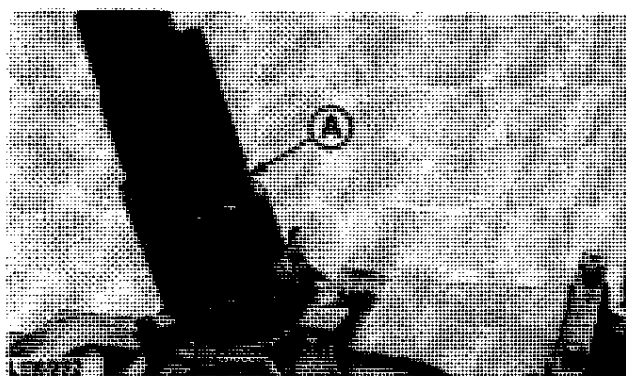


L112590-LB31025AE-010287

REMOVING STEERING HOUSING (Tractors with Manual or Power Steering)

See "Removing Steering Housing" in Section 60, Group 15 or 20.

A-Steering housing



L116992-LB31025AE-010287

ATTACHING LIFTING DEVICE

Secure lifting device (A) (self-manufacture) to clutch housing.

Attach clutch housing to a suitable hoist.

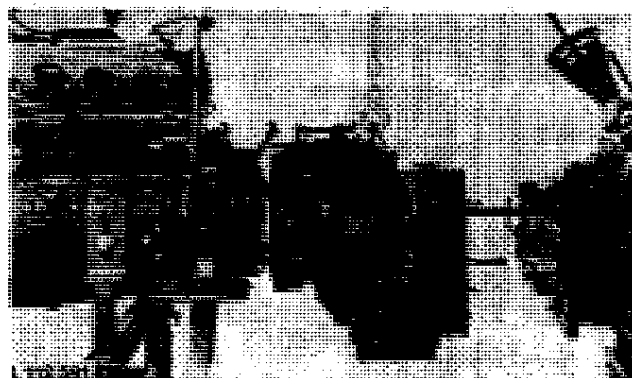
Separate between engine and clutch housing (refer to "Separating Between Engine and Clutch Housing").



L116997-LB31025AE-010287

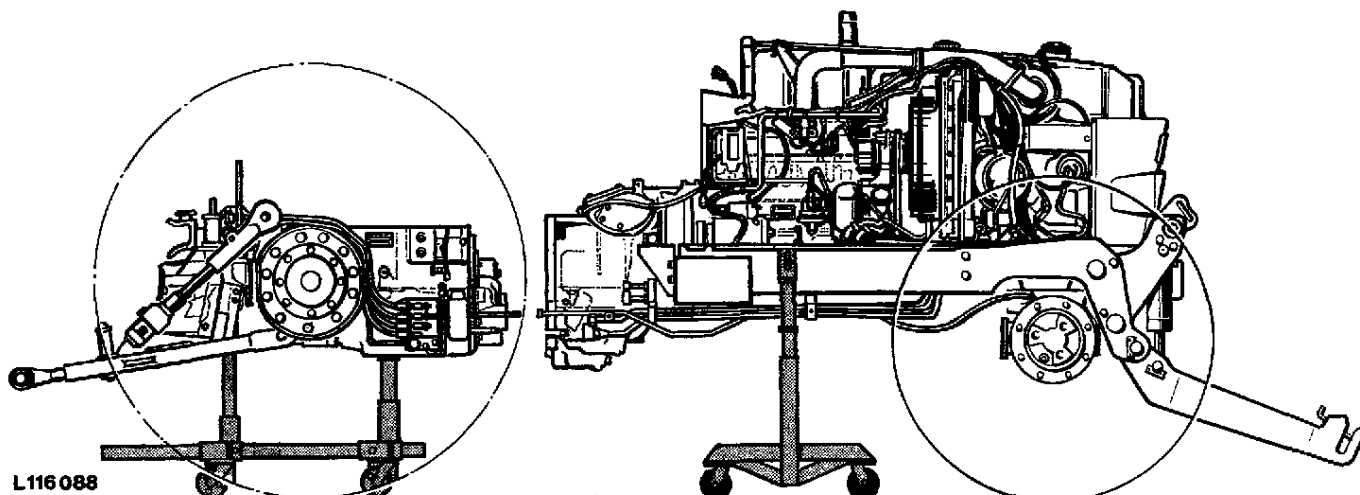
INSTALLING CLUTCH HOUSING

Install clutch housing, reversing removal procedure.



L114835, L112591-LB21025AE-010886

REMOVING TRANSMISSION

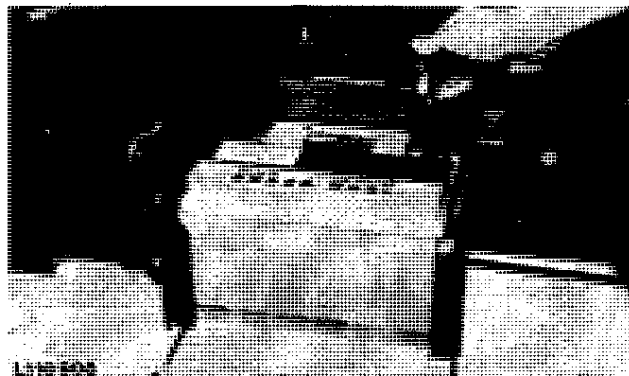


L116088-LB31025AE-010287

REMOVING SG2 CAB (When Equipped)

Refer to "Removing SG2 Cab".

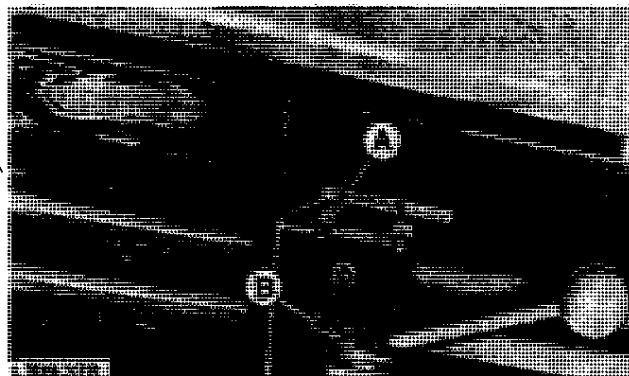
Disconnect battery ground straps.



L110906-LB31025BE-010287

DISCONNECTING RETAINING BRACKET FROM BATTERY BOX (Tractors With Front Hitch)

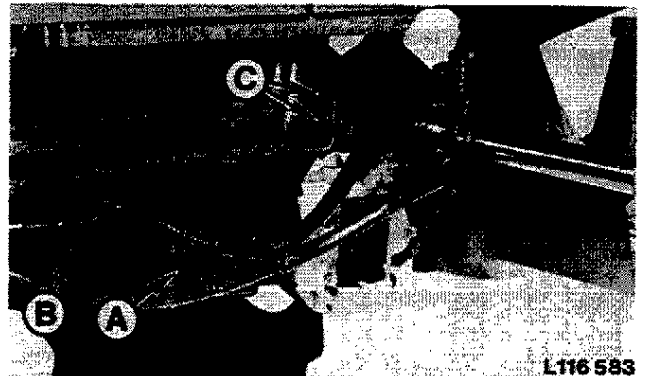
Remove attaching nuts (A) from retaining bracket of shut-off cock (B).



L109378-LB21025AE-010886

REMOVING U.J. DRIVE SHAFT ANTI-WRAP GUARD (Tractors With Front Wheel Drive)

A—Anti-wrap guard
B—Universal jointed drive shaft
C—Hex. socket screws

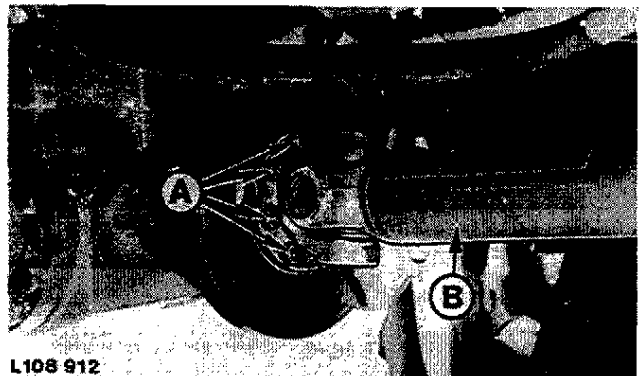


L116583-LB31025AE-010287

REMOVING U.J. DRIVE SHAFT (Tractors With Front Wheel Drive)

Remove attaching nuts (A) from flange of universal jointed drive shaft (B).

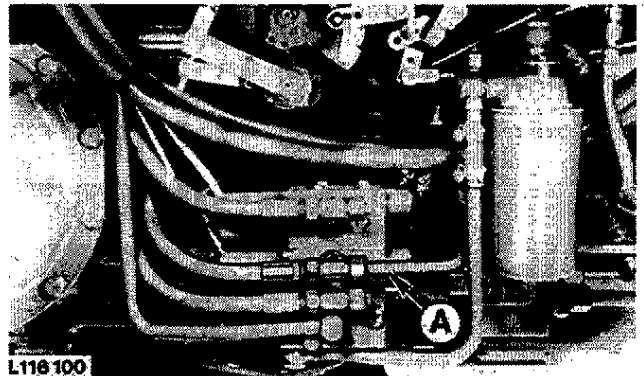
Pull universal jointed drive shaft from rear clutch shaft.



L108912-LB21025AE-010886

DISCONNECTING PRESSURE LINE TO FRONT HITCH (When Equipped)

Disconnect pressure line (A) at selective control valve.

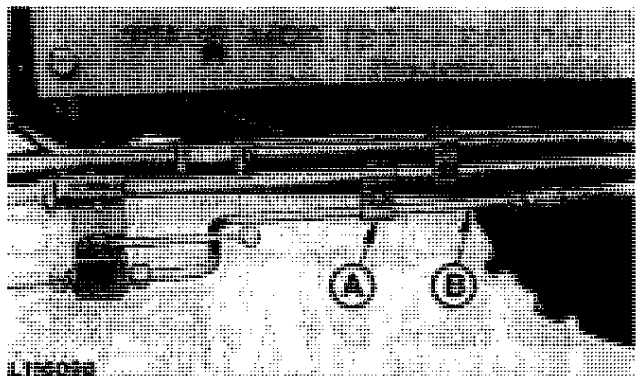


L116100-LB31025AE-010287

REMOVING PRESSURE LINE TO FRONT HITCH (When Equipped)

Remove clamp (A).

Remove pressure line (B) at connection to hose.

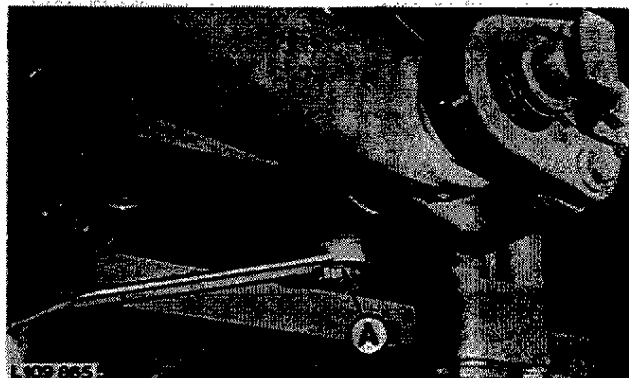


L116098-LB31025AE-010287

DRAINING TRANSMISSION OIL

Position a suitable container with a capacity of approx. 60 litres (15.85 U.S. gal.) to collect the transmission oil.

A—Drain plug



L109865-LB31025AE-010287

ATTACHING SPLITTING STAND TO SIDE FRAMES

Attach splitting stand (A) JT05724 to both side frames or, on tractors without side frames, to flywheel housing.

NOTE: Modify splitting stand supports as shown under "SPECIAL TOOLS (Self-Manufacture)".

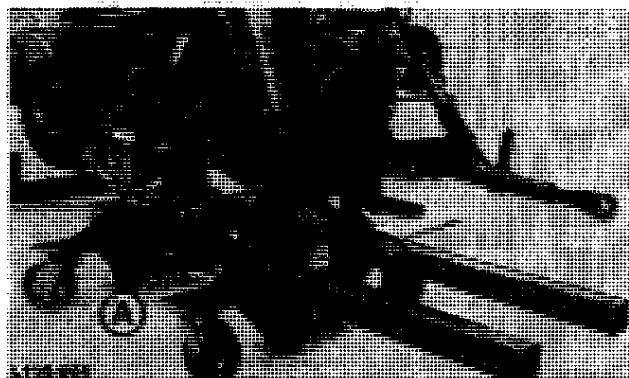


L112301-LB31025AE-010287

POSITIONING SPLITTING STAND UNDER TRANSMISSION CASE

Remove rear wheels.

A—Splitting stand JT05723

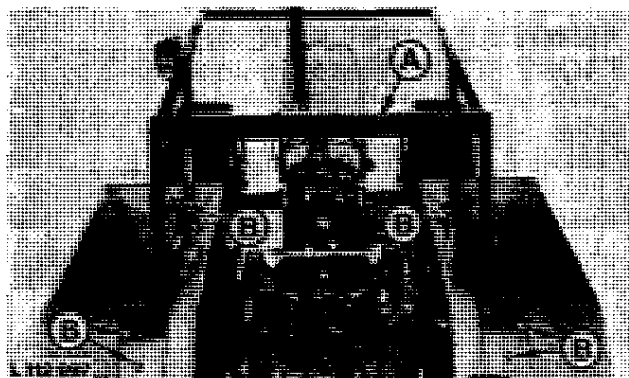


L116974-LB31025AE-010287

REMOVING 4-POST ROLL GUARD (When Equipped)

Remove cap screws (B).

Using a suitable hoist, lift off roll guard (A).



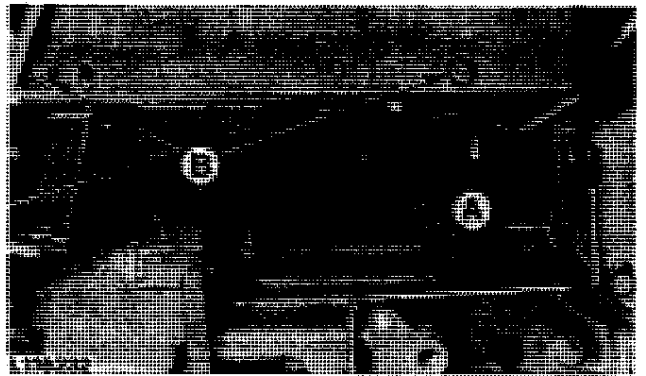
L112997-LB21025AE-010886

Tractor Separation

REMOVING FENDER (Tractors Without Cab)

Disconnect plug of fender wiring harness (A).

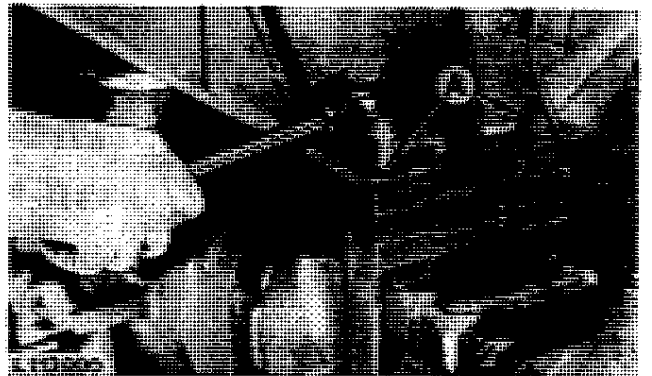
Remove attaching screws (B).



L116232-LB31025AE-010287

Tractors With Shell-Type Fenders

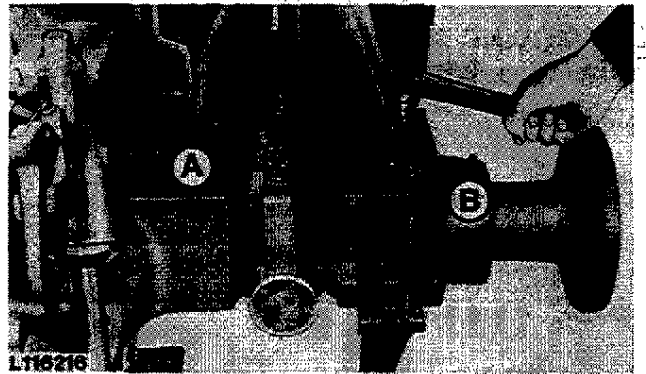
Remove both attaching hex. nuts (A).



L113000-LB21025AE-010886

Tractors With Wide Fenders

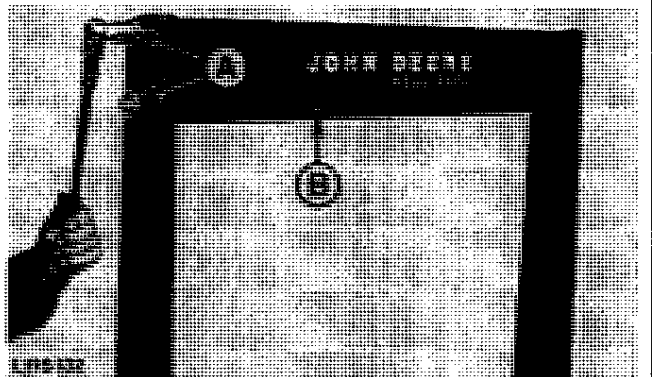
Remove the two attaching nuts (A) and cap screws (B).



L116216-LB31025AE-010287

REMOVING 2-POST ROLL GUARD (When Equipped)

Remove cap screws (A) of crossbar (B).



L115132-LB21025AE-010886

Tractor Separation

Removing Left and Right-Hand Posts

Remove cap screws (A) at final drive housing.

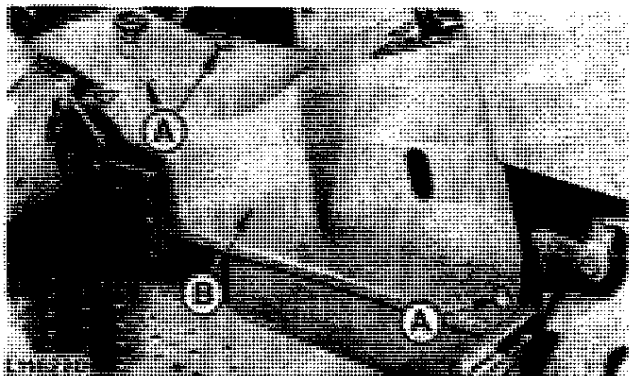
A—Cap screws
B—Left-hand post



L115133-LB21025AE-010886

REMOVING CENTER STEP (Tractors Without Cab)

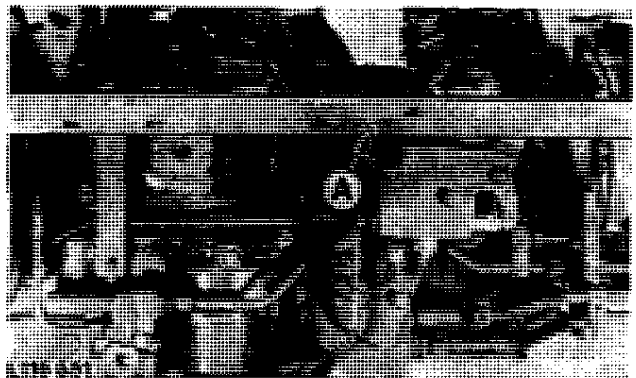
A—Cap screws
B—Cover plate



L116220-LB31025AE-010287

REMOVING RIGHT-HAND STEP (Tractors Without Cab)

A—Step

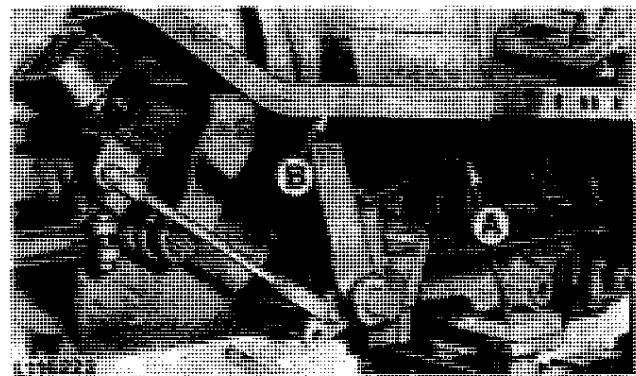


L116551-LB31025AE-010287

REMOVING LEFT-HAND STEP (Tractors Without Cab)

Disconnect return spring (A) of clutch pedal.

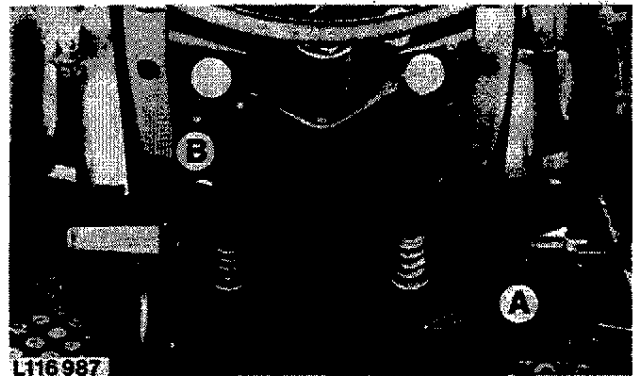
A—Return spring
B—Step



L116222-LB31025AE-010287

REMOVING PLATFORM PLATE (Tractors With MC1 Cab)

Remove platform plate (A) together with steering column cover (B).



L116987

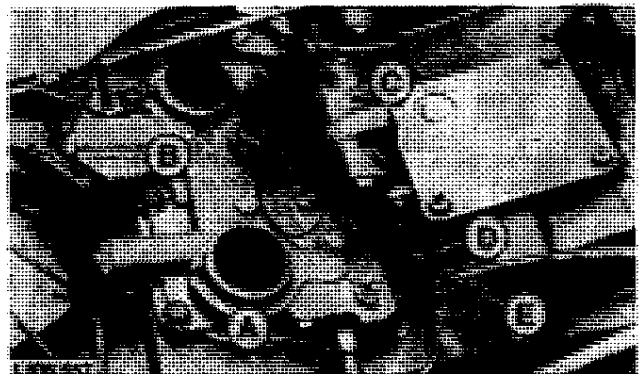
L116987-LB31025AE-010287

REMOVING TRANSMISSION SHIFT COVER

Disconnect front PTO pressure line (A), if equipped.
Pull down cables (B and D).
Disconnect line (C) from elbow fitting, if equipped.
Pull off breather line (E).

A—Pressure line
B—Cable
C—Line

D—Cable
E—Breather line



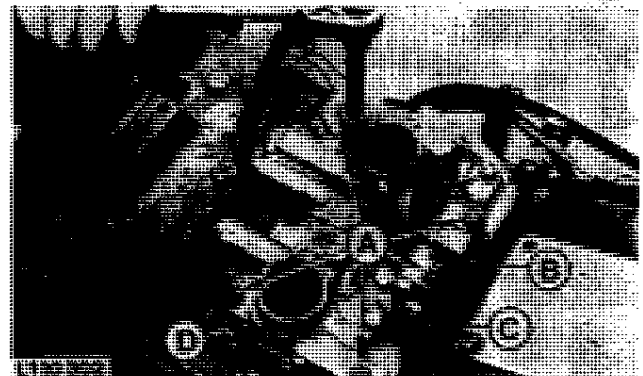
L108557-LB31025AE-010287

Remove cap screws (A) and lift off transmission shift cover (D) together with cover (B).

NOTE: After removing the complete transmission shift cover, do not move lever shaft (C) again, as otherwise detent balls may fall out of cover.

A—Cap screws
B—Cover

C—Lever shaft
D—Shift cover

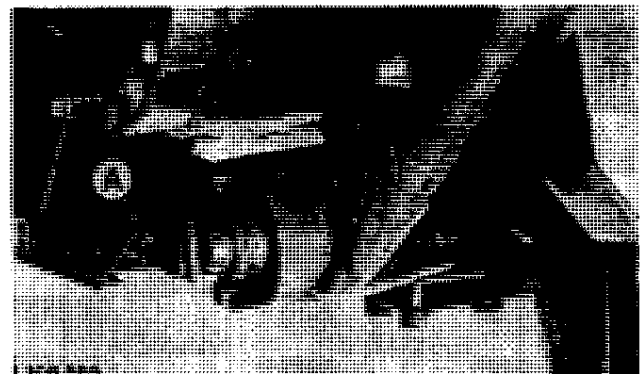


L108557-LB31025AE-010287

DRAINING FUEL (Tractors With Auxilliary Tank)

Open drain tap (A).

Capacity: 136.0 liters (35.9 U.S. gal.)



L108557

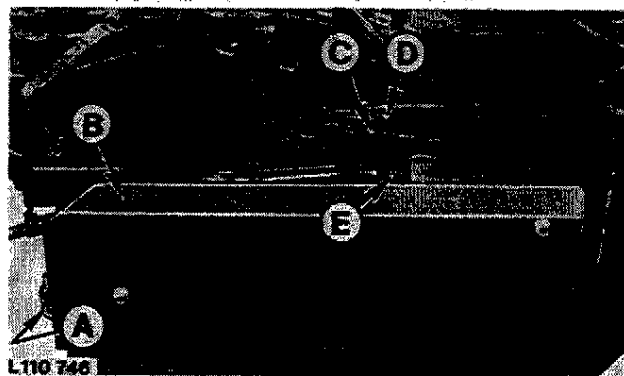
L108565-LB31025AE-010287

REMOVING AUXILIARY FUEL TANK (When Equipped)

Remove cap screw (A).
Remove cover (B).
Disconnect breather line (C) and suction line (D).
Pull off cable at fuel gauge sending unit.

A—Cap screw
B—Cover
C—Breather line

D—Suction line
E—Inlet line



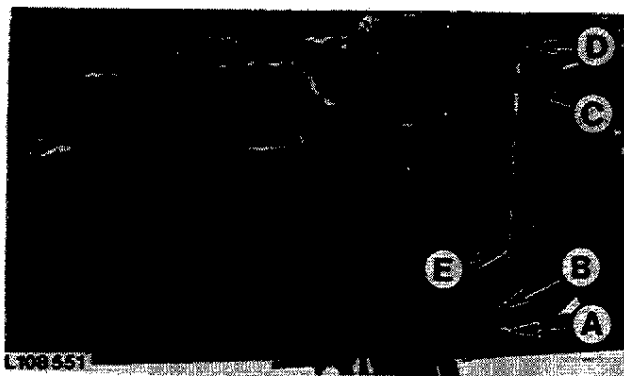
L110 746

L110746-LA61025AE-170485

Remove cap screws (A and B). Remove hex. nut (E).
Turn cap screw (C) upwards and remove auxiliary fuel tank.

A—Cap screw
B—Cap screw
C—Cap screw

D—Hex. nut
E—Hex. nut

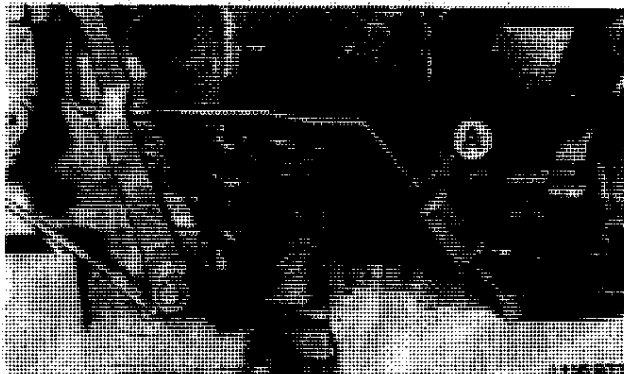


L108 551

L108551-LA71025AE-180385

DISCONNECTING HYDRAULIC LINE (When Equipped)

Disconnect hydraulic line (A) at filter.



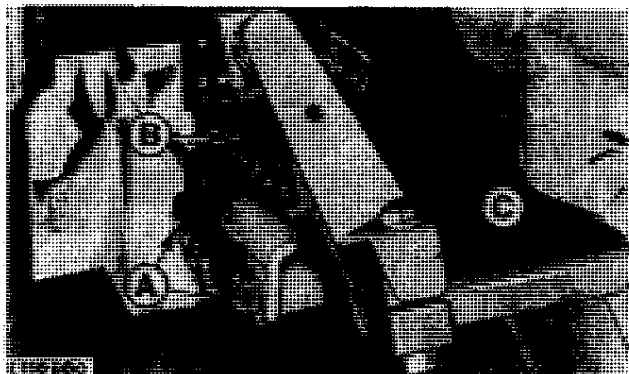
L116 973

L116973-LB31025AE-010287

DISCONNECTING HANDBRAKE LEVER (Tractors With MC1 Cab)

Remove cap screws (A) of quadrant (B) from final drive housing.

Loosen clamping bolt and pull handbrake lever (C) from shaft.



L116 980

L116980-LB31025AE-010287

DISCONNECTING TRANSMISSION WIRING HARNESS (Tractors With MC1 Cab)

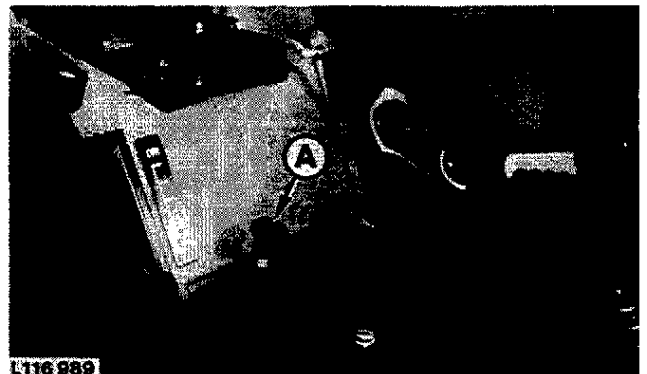
A—Transmission wiring harness



L116066-LB30125AE-010287

REMOVING RATE-OF-DROP ADJUSTING SCREW (Tractors With MC1 Cab)

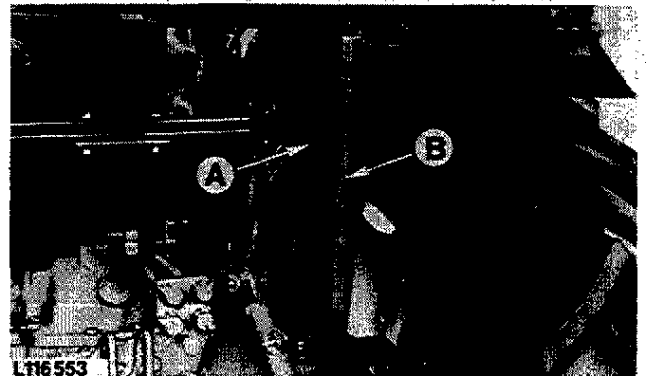
Remove attaching screw of rate-of-drop adjusting screw (A).



L116989-LB31025AE-010287

REMOVING ROCKSHAFT LIFT LINK ADJUSTER (Tractors With MC1 Cab)

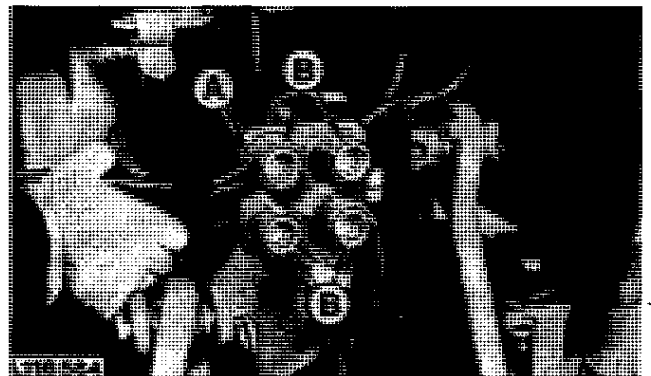
Remove cap screws (A) and lift off adjuster (B).



L116553-LB31025AE-010287

REMOVING QUICK COUPLERS (Tractors With MC1 Cab)

Remove snap rings (A) and lift quick couplers (B) out of mounting plate.



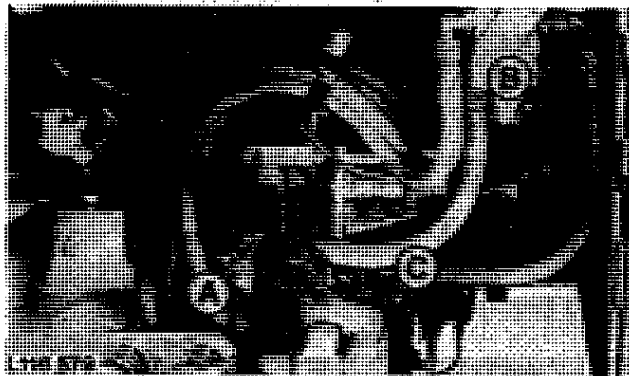
L116584-LB31025AE-010287

DISCONNECTING HYDRAULIC LINES (Tractors With MC1 Cab)

Disconnect return line (A) at rockshaft housing.

Disconnect pressure line (B) at elbow fitting of selective control valves.

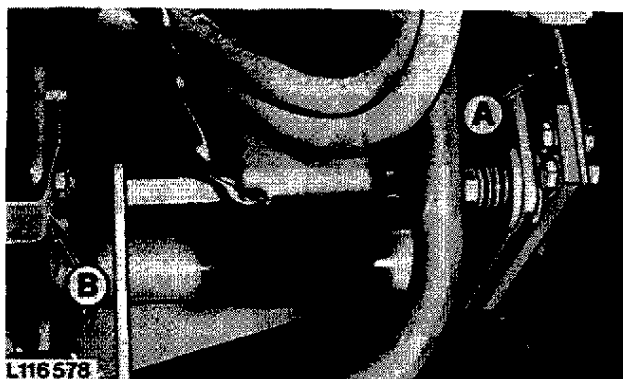
Disconnect PTO connecting rod (C), when equipped.



L116579-LB31025AE-010287

REMOVING ROCKSHAFT CONTROL LEVER (Tractors With MC1 Cab)

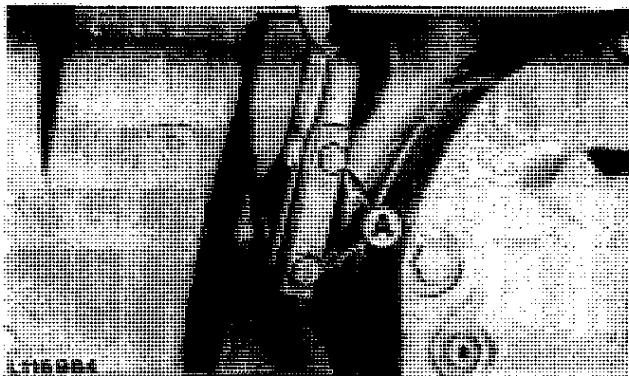
Remove control lever (A) and selector lever (B).



L116578-LB31025AE-010287

REMOVING DIFFERENTIAL LOCK LEVER (Tractors With MC1 Cab)

Remove cap screws (A).



L116984-LB31025AE-010287

REMOVING HEX. NUTS OF FRONT CAB MOUNTINGS (Tractors With MC1 Cab)

A—Hex. nuts



L116555-LB31025AE-010287

Tractor Separation

REMOVING CAP SCREWS OF REAR CAB MOUNTINGS (Tractors With MC1 Cab)

A—Cap screws



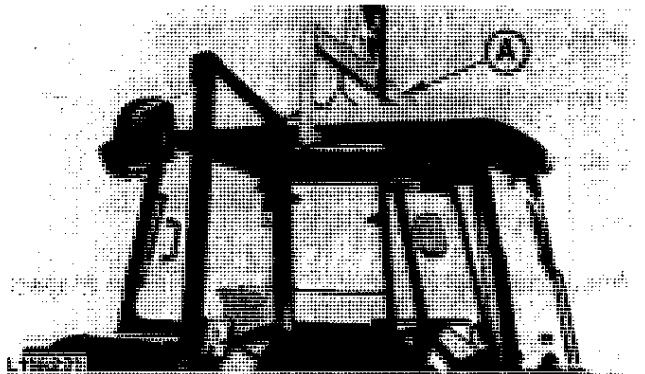
LT16 230

L116230-LB31025AE-010267

RAISING MC1 CAB (When Equipped)

Raise rear of cab approx. 50 mm (2 in.) using a self-manufactured holding device (A).

NOTE: Manufacture a holding device as shown under "SPECIAL TOOLS (Self-Manufacture)".

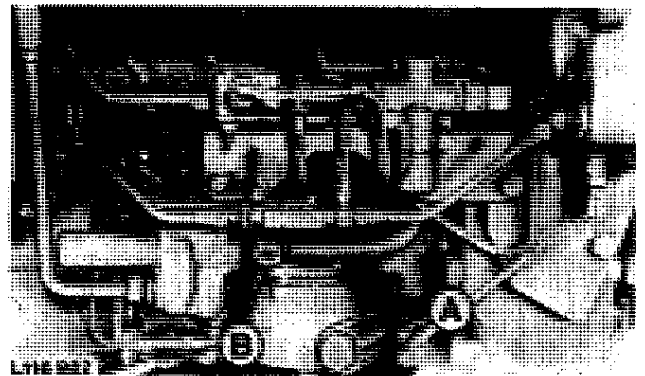


LT16 271

L116221-LB31025AE-010267

REMOVING TRANSMISSION OIL FILTER

Remove transmission oil filter (A).
Disconnect pressure line (B) at flow control valve.



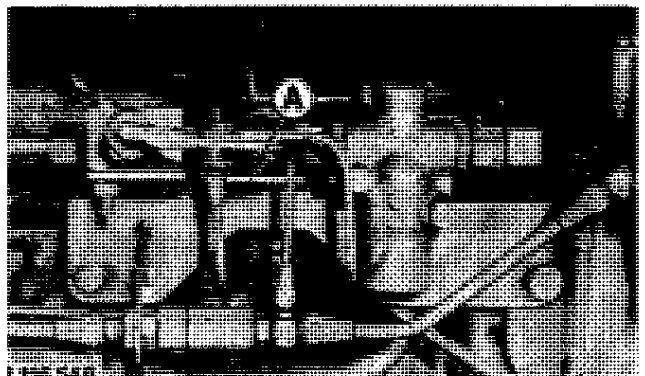
LT16 282

L116982-LB31025AE-010267

REMOVING TRAILER BRAKE VALVE (When Equipped)

Remove trailer brake valve complete with retaining bracket (A).

NOTE: Seal open ends with plastic plugs.



LT16 548

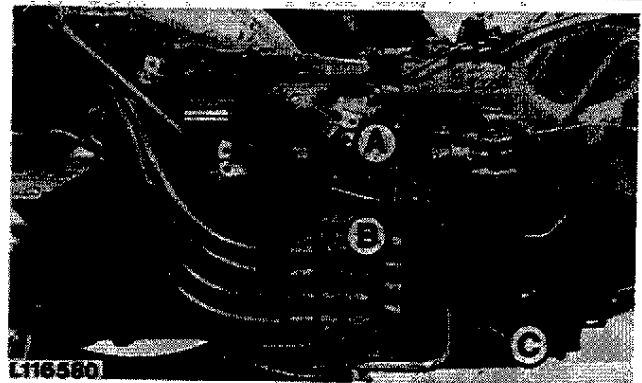
L116548-LB31025AE-010267

REMOVING S.C.V. BRACKET (Tractors With SG2 Cab)

Disconnect brake line (A) at connector.

Remove return line (B).

Remove cap screw (C) of selective control valve bracket.



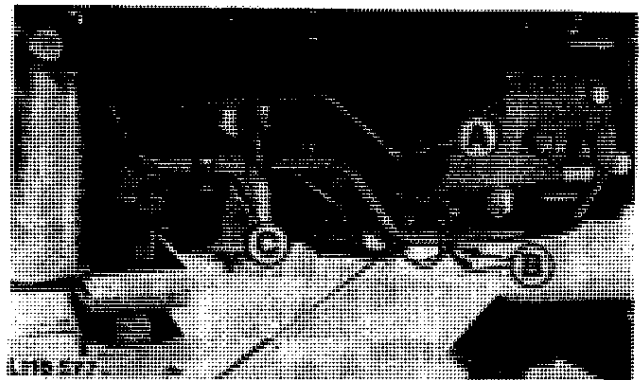
L116580-LB31025AE-010287

DISCONNECTING BRAKE LINES (Tractors Without Cab or With MC1 Cab)

Disconnect brake lines (A) at brake valve.

Pull cable (B) from stop light switch.

When equipped, disconnect brake line (C) at connector.



L116577-LB31025AE-010287

REMOVING CAP SCREWS BETWEEN CLUTCH HOUSING AND TRANSMISSION CASE

A—Cap screws

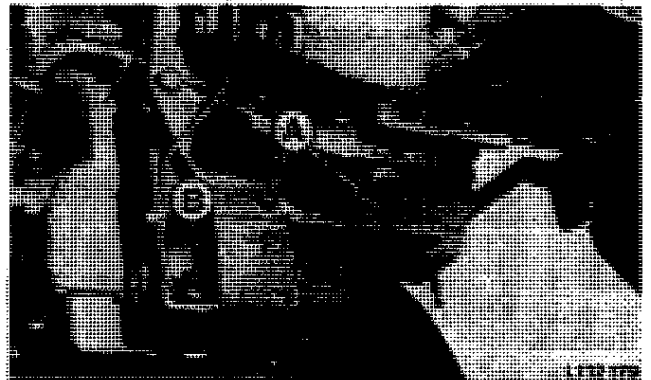


L112181,L112182-LA11025AE-000585

Tractor Separation

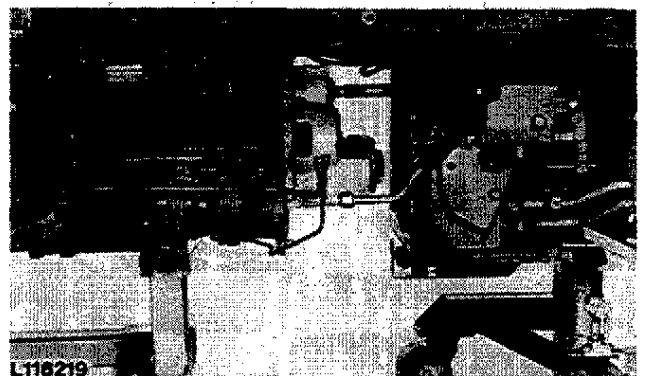
On tractors with front wheel drive, pull cable (B) from solenoid switch.

A—Cap screws
B—Cable



ROLLING TRANSMISSION TO THE REAR

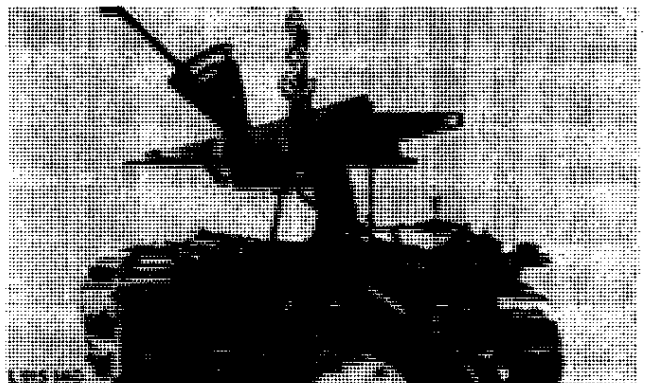
IMPORTANT: Move transmission so that it is exactly in alignment with input shaft and PTO clutch shaft.



L116219-LB31025AE-010297

REMOVING ROCKSHAFT

Refer to "Removing Rockshaft".



L115870-LB31025AE-010297

REMOVING FINAL DRIVES

Refer to "Removing Final Drives".



L115870-LB31025AE-010297

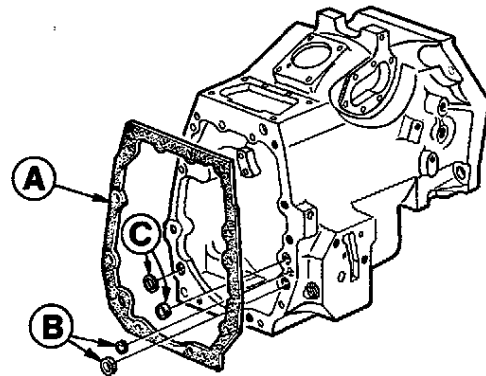
INSTALLING TRANSMISSION

Install rockshaft and final drives as described in "Installing Rockshaft" and "Installing Final Drives".

Position new gasket (A) and seal rings (B and C) on clutch housing.

Move transmission towards clutch housing with input shaft and PTO clutch shaft exactly aligned.

Applying uniform pressure, move transmission until it is flush against clutch housing, inserting transmission case dowel pins into bores of clutch housing.



L112300



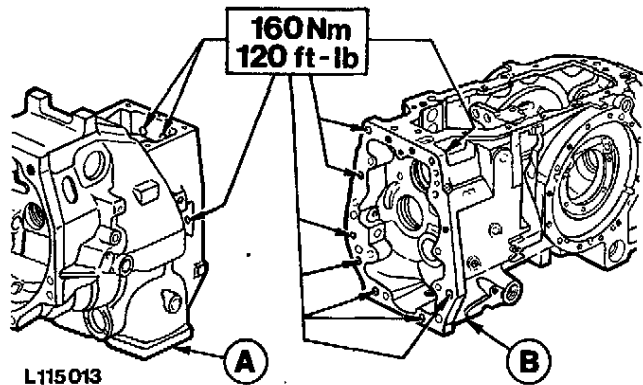
L112300, L116219-LB31025AE-010287

CONNECTING TRANSMISSION CASE TO CLUTCH HOUSING

IMPORTANT: Make sure that transmission case is flush against clutch housing before tightening screws.

A—Clutch housing
B—Transmission case

On tractors with front wheel drive, reconnect cable to solenoid switch.



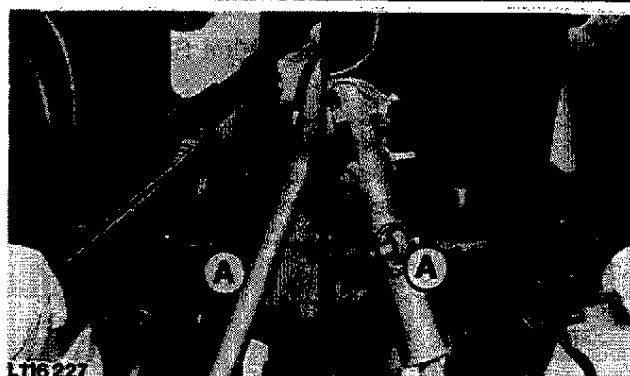
L115013



L115013, L112305-LB31025AE-010287

TIGHTENING REAR CAB MOUNTINGS (Tractors With MC1 Cab)

Tighten cap screws (A) to 245 Nm (180 ft-lb).



L116227-LB31025AE-010287

TIGHTENING FRONT CAB MOUNTINGS (Tractors With MC1 Cab)

Tighten hex. nuts (A) to 245 Nm (180 ft-lb).

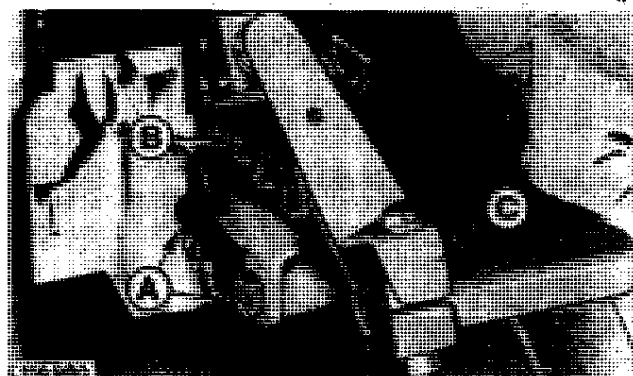


L116565-LB31025AE-010287

TIGHTENING HANDBRAKE QUADRANT ON FINAL DRIVE HOUSING (Tractors With MC1 Cab)

Tighten both cap screws (A) to 120 Nm (85 ft-lb).

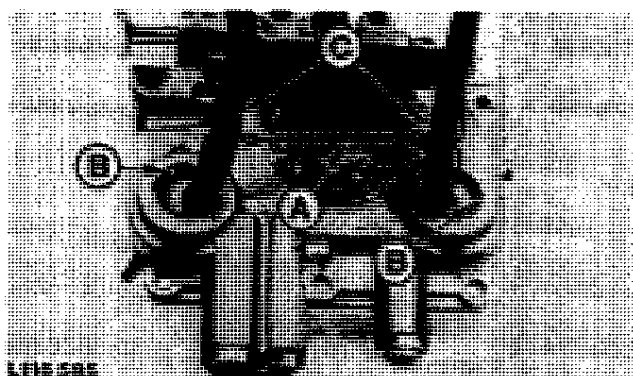
A—Cap screws
B—Quadrant
C—Handbrake lever



L116980-LB31025BE-010287

REMOVING SHIFT LEVERS (Tractors With Center Shift)

Disconnect spring (A).
Remove snap rings (B).
Remove both shift levers (C) from transmission shift cover.



L116585-LB31025AE-010287

INSTALLING TRANSMISSION SHIFT COVER

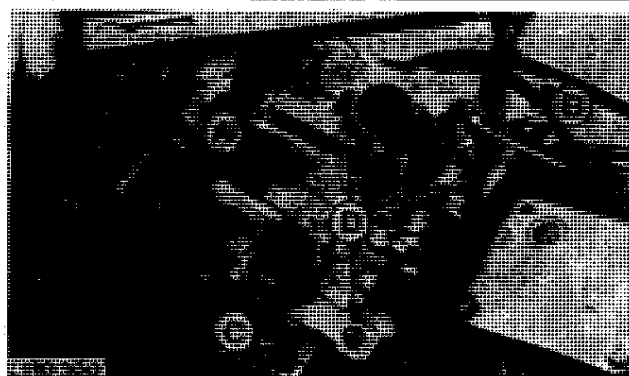
Place new gasket (A) in position.
Position transmission shift cover over oil lines and press downwards applying uniform pressure, making sure that the O-rings in shift cover bores are not damaged.



L110186-LA71025AE-000385

TIGHTENING TRANSMISSION SHIFT COVER CAP SCREWS

Position ground cable (A) under cap screw (D).
Connect detent pressure line (B), when equipped.
Connect front PTO pressure line (C), when equipped.
Install both shift levers, when equipped.
Tighten shift cover cap screws (D) to 50 Nm (35 ft-lb).



L110300-LB31025AE-010287

INSTALLING TRANSMISSION OIL FILTER

Carefully install new packing (A) coated with grease in transmission case groove, making sure that packing is seated correctly. Reinstall filter cover (C) together with new element (B) and tighten retaining screw (D).
Do not overtighten!

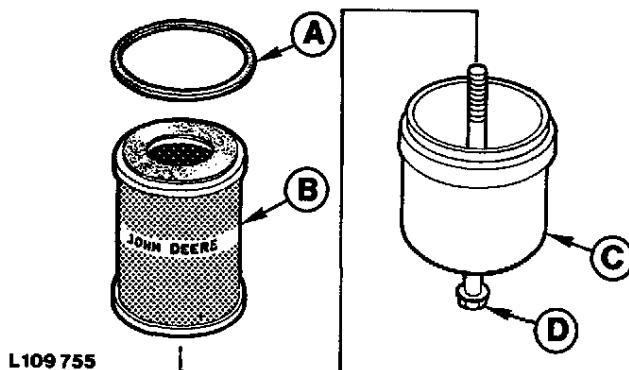
Tighten oil drain plug to 135 Nm (100 ft-lb).
Always use a new packing.

A-Packing
B-Filter element

C-Filter case
D-Screw

Complete installation, reversing removal procedure.

Refill transmission with specified oil (see Group 15).



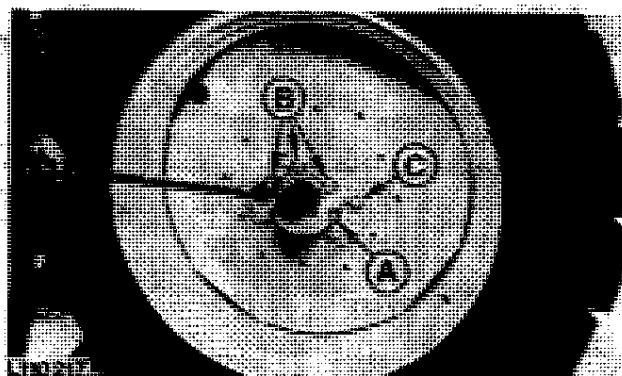
L109755-LA71025AE-000385

Tractor Separation

TIGHTENING REAR WHEEL BOLTS (Tractors With Rack-and-Pinion Axle)

Adjust to desired tread width with adjustment bolt (A).
Tighten cap screws (B and C) to 400 Nm (300 ft-lb).

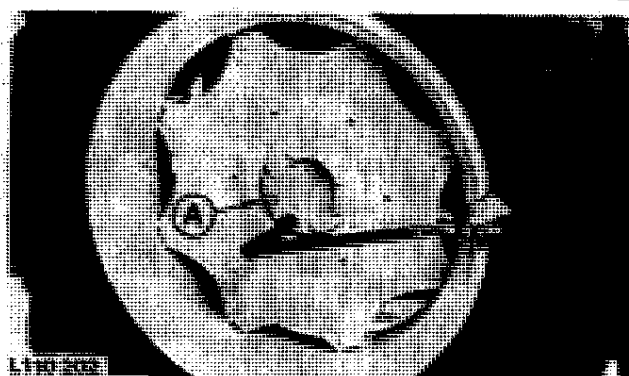
*NOTE: Drive tractor approx. 50 m (160 ft.) and then
tighten cap screws again to 400 Nm (300 ft-lb).*



L110217-LA71025AE-000385

TIGHTENING REAR WHEEL BOLTS (Tractors With Flanged Rear Axle)

Tighten cap screws (A) to 400 Nm (300 ft-lb).



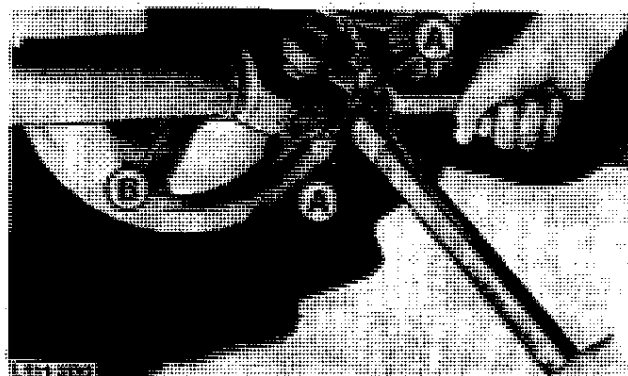
L110202-LA71025AE-000385

INSTALLING U.J. DRIVE SHAFT (Tractors With Front Wheel Drive)

Tighten attaching nuts (A) to 75 Nm (55 ft-lb).

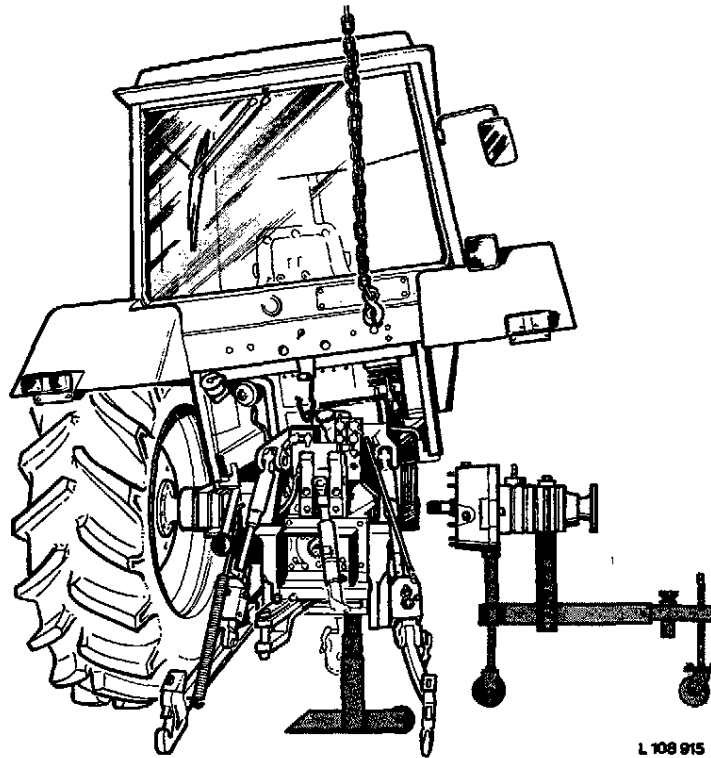
When equipped, reinstall drive shaft anti-wrap guard.

A-Attaching nuts
B-Universal-jointed
drive shaft



L111200-LA11025AE-151085

REMOVING FINAL DRIVES



L 108 915

L108915-LA71025AE-260385

DISCONNECTING BATTERY GROUND STRAPS



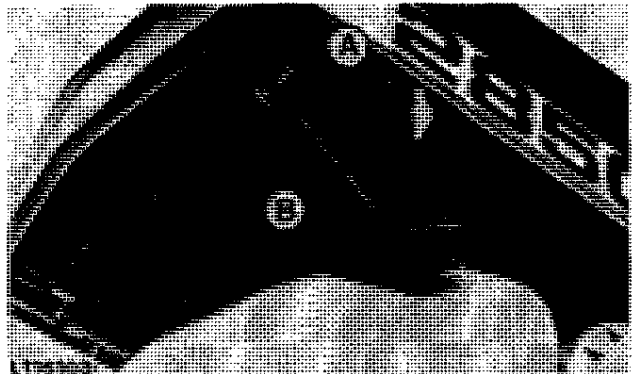
L110506

L110506-LA11025DE-180885

REMOVING ENGINE HOOD (Tractors With SG2 or MC1 Cab)

Remove exhaust pipe and air precleaner, when equipped.
Remove radiator side plates and grille screens.

Swing hood upward from the front. Remove quick-lock pin (A) at gas pressure cylinder (B).



L116103

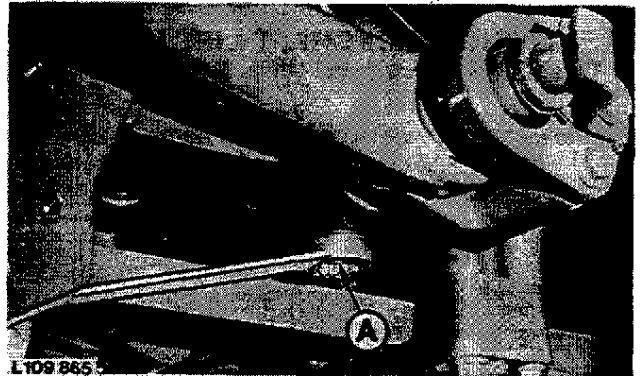
L116103-LB31025BE-010888

Tractor Separation

DRAINING TRANSMISSION OIL

Position a suitable container with a capacity of approx. 60 litres (15.85 U.S. gal.) to collect the transmission oil.

A—Drain plug

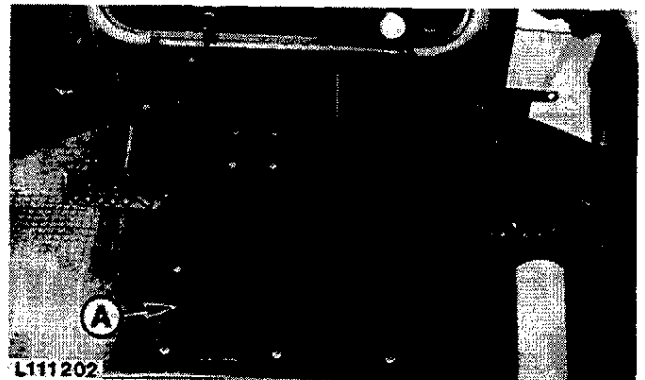


L109865

L109865-LB31025AE-010287

REMOVING PLATFORM PLATE (Tractors With SG2 Cab)

A—Platform plate

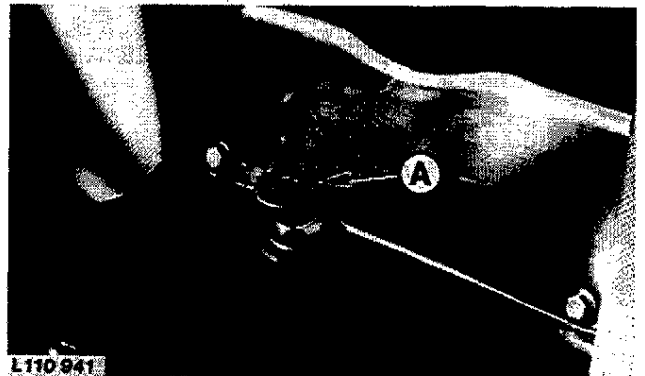


L111202

L111202-LB31025BE-010287

REMOVING RATE-OF-DROP ADJUSTING SCREW (Tractors With SG2 or MC1 Cab)

Remove attaching screw of rate-of-drop adjusting screw (A).

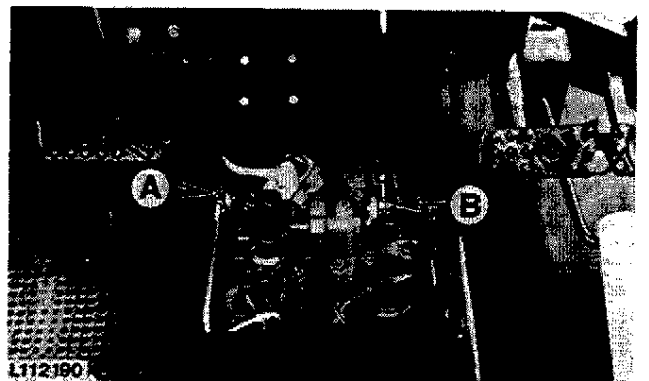


L110941

L110941-LB31025AE-010287

DISCONNECTING PTO AND HI-LO SHIFT UNIT LINKAGE (Tractors With SG2 Cab)

A—Hi-Lo shift unit linkage
B—PTO linkage

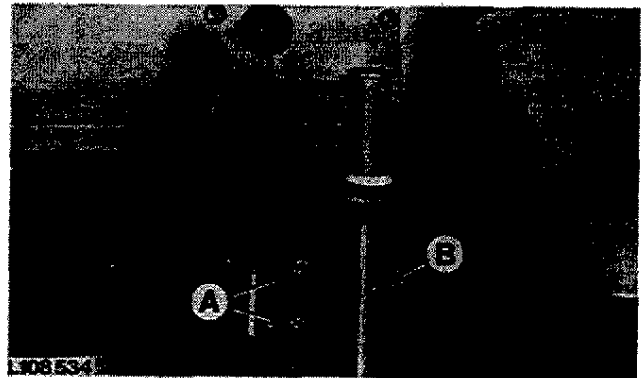


L112190

L112190-LB31025AE-010287

REMOVING ROCKSHAFT LIFT LINK ADJUSTER (Tractors With SG2 Cab)

Remove cap screws (A) and lift off adjuster (B).

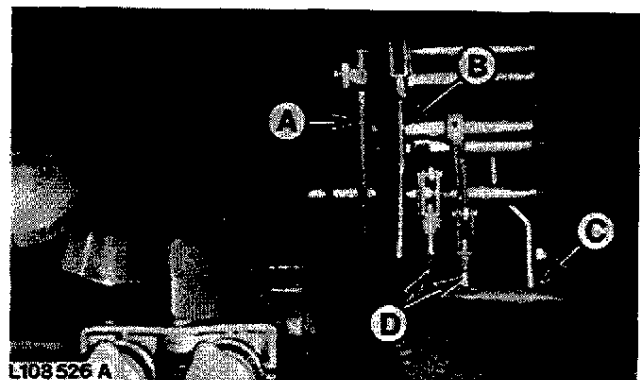


L108534-LB31025AE-010287

REMOVING CONNECTING RODS (Tractors With SG2 Cab)

- A-Rockshaft control lever connecting rod
- B-Rockshaft selector lever connecting rod
- C-PTO speed control lever connecting rod (when equipped)
- D-Selective control valve connecting rods

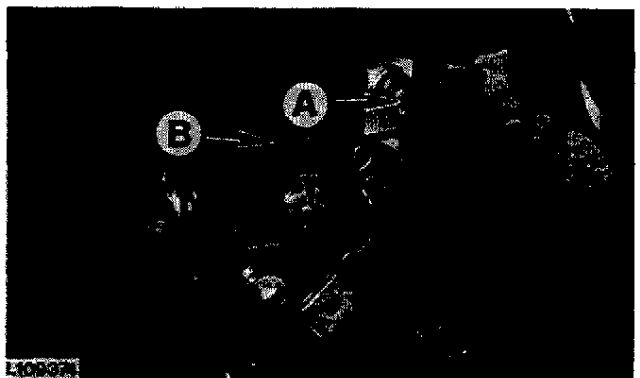
IMPORTANT: Always remove rockshaft connecting rods completely in order to avoid rods being bent when installing the SG2 cab.



L108526A-LB31025AE-010287

REMOVING RETAINING BRACKET FROM ROCKSHAFT HOUSING (Tractors With SG2 Cab)

- A-Cap screws
- B-Retaining bracket



L109374-LB31025AE-010287

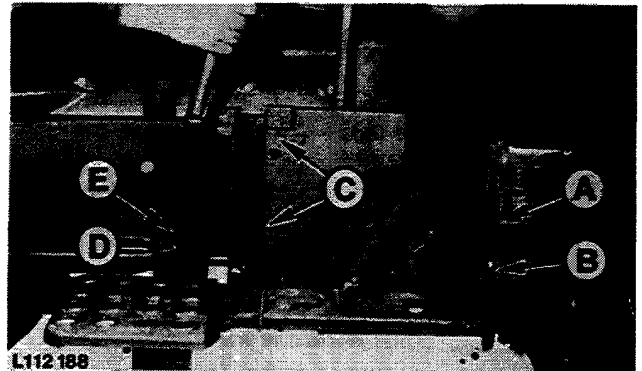
Tractor Separation

REMOVING LEFT-HAND BATTERY BOX (Tractors With Auxilliary Tank)

Drive spring pin (A) out of rod (B) and remove rod.

Remove the two attaching nuts (C) holding battery box to side frame.

On tractors with front PTO, remove cap screw (D).
Separate step (E) from side frame.

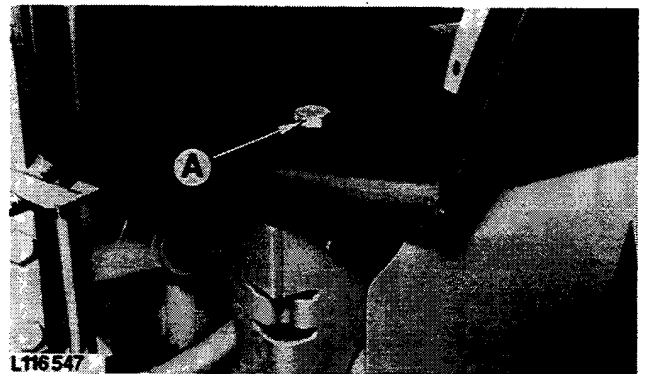


L112188-LB31025CE-010287

REMOVING CAP SCREW OF FRONT LEFT- HAND CAB MOUNTING (Tractors With SG2 Cab)

IMPORTANT: When removing right-hand final drive,
only loosen cap screw. Do not remove.
Danger of accidents!

A-Cap screw

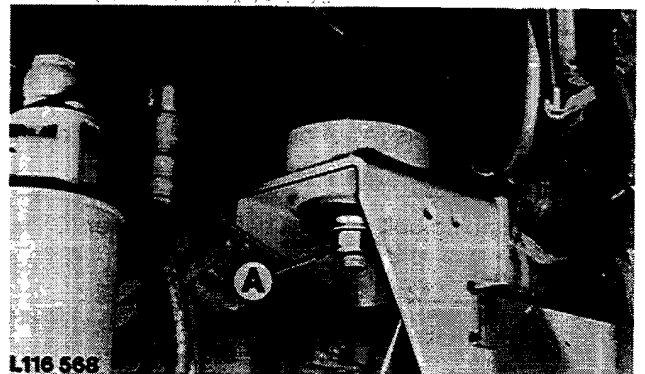


L116547-LB31025AE-010888

REMOVING CAP SCREW OF FRONT RIGHT-HAND CAB MOUNTING (Tractors With SG2 Cab)

IMPORTANT: When removing left-hand final drive,
only loosen hex. nut. Do not remove.
Danger of accidents!

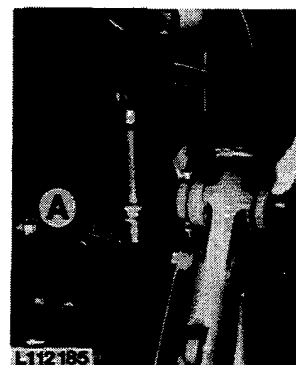
A-Hex. nut



L116568-LB31025AE-010287

REMOVING ATTACHING HEX. NUTS OF REAR CAB MOUNTINGS (Tractors With SG2 Cab)

A-Hex. nuts



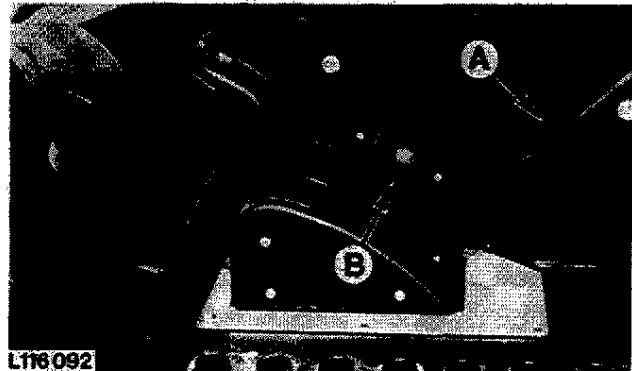
L112185,L112186-LB31025AE-010287

Tractor Separation

REMOVING COVER PLATE (Tractors With MC1 Cab)

Remove cover plate (A).

Loosen rubber boot (B) by removing attaching screws.

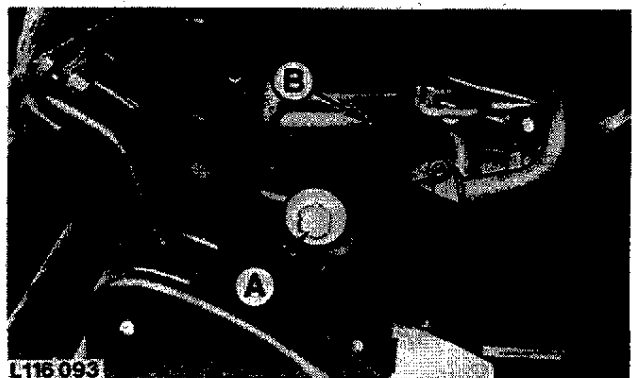


L116092-LB31025AE-010287

REMOVING THROTTLE PEDAL (Tractors With MC1 Cab)

Remove cap screw (A).

Remove throttle pedal (B).

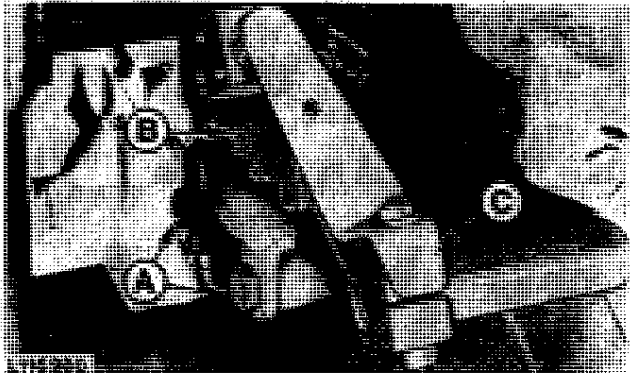


L116093-LB31025AE-010287

DISCONNECTING HANDBRAKE LEVER (Tractors With MC1 Cab)

Remove cap screws (A) of quadrant (B) from final drive housing.

Loosen clamping bolt and pull handbrake lever (C) from shaft.



L116094-LB31025AE-010287

DISCONNECTING STEERING SYSTEM HYDRAULIC LINES (Tractors With SG2 Cab)

Remove unions (A) of steering system hydraulic lines.

NOTE: Seal open ends with plastic plugs.



L116228-LB31025AE-010287

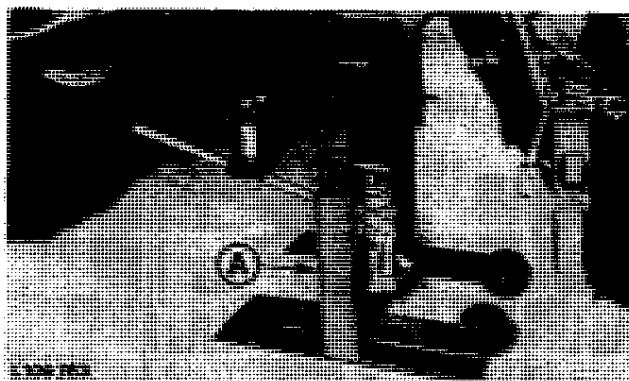
Tractor Separation

REMOVING RIGHT-HAND FINAL DRIVE

Raise rear right-hand corner of tractor using universal support stand JT05725 (A).

Remove rear wheel.

Remove stabilizer chain retaining bracket.

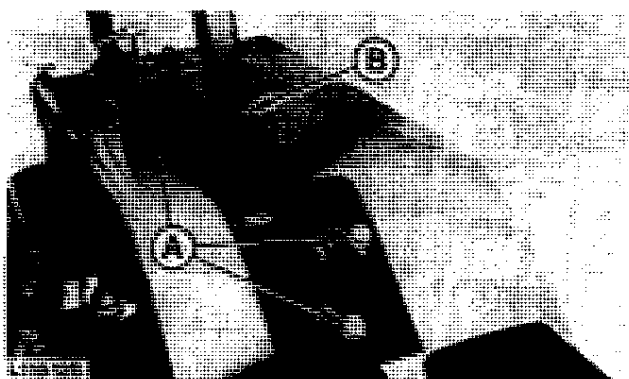


L109763-LB21025AE-000886

DISCONNECTING 4-POST ROLL GUARD AT FENDER (When Equipped)

Remove cap screws (A).

Lift right-hand side of roll guard (B) slightly.

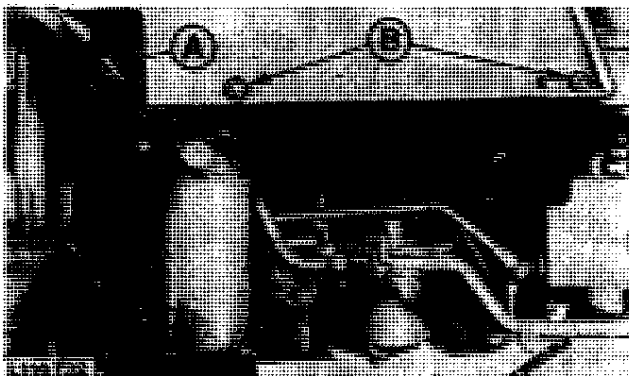


L115128-LB21025AE-010886

REMOVING FENDER (Tractors Without Cab)

Disconnect fender wiring harness (A).

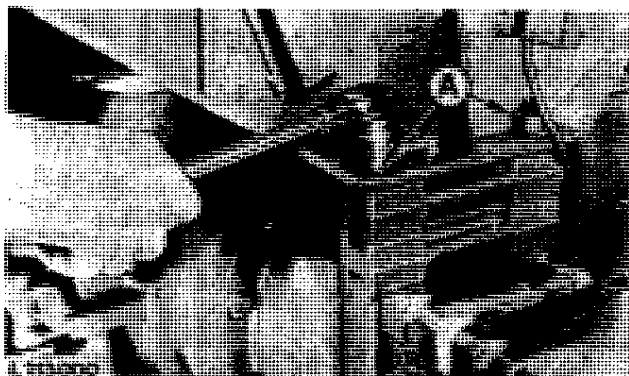
Remove attaching screws (B).



L116732-LB31025AE-010287

Tractors With Shell-Type Fenders

Remove both attaching hex. nuts (A).

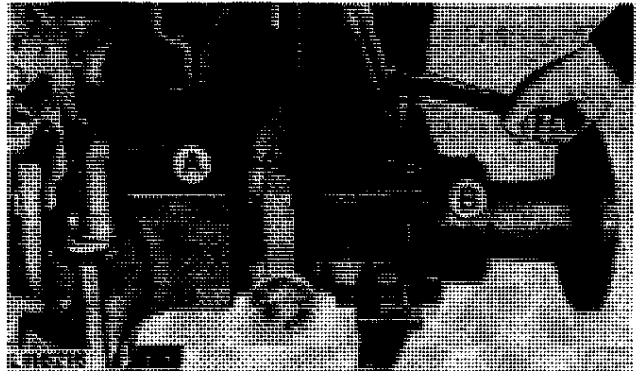


L113000-LB21025AE-010886

Tractor Separation

Tractors With Wide Fenders

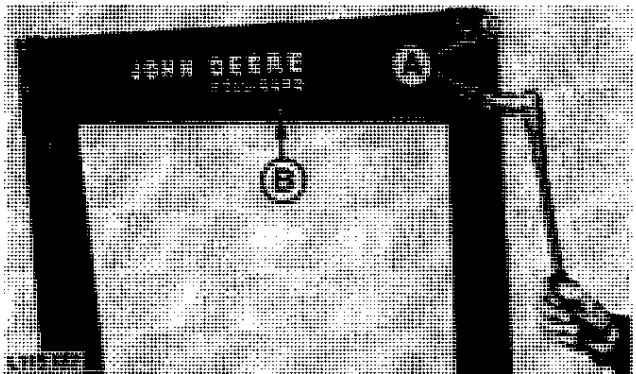
Remove the two attaching nuts (A) and cap screws (B).



L116216-LB31025AE-010287

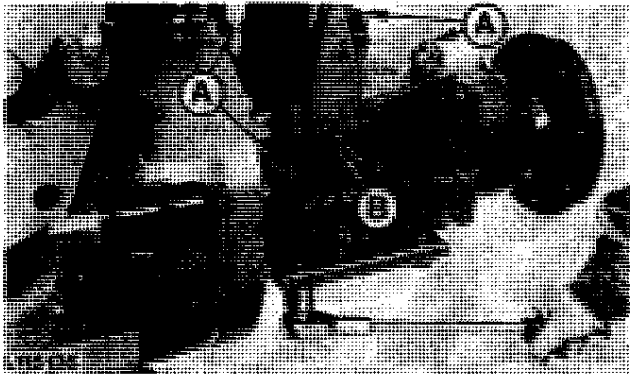
REMOVING RIGHT-HAND SUPPORT OF 2-POST ROLL GUARD (When Equipped)

Remove both cap screws (A) of crossbar (B).



L115137-LB21025AE-010886

Remove cap screws (A) of right-hand support (B) at final drive housing.



L115135-LB21025AE-010886

REMOVING S.C.V. BRACKET (Tractors Without Cab)

Remove selective control valve bracket (A).



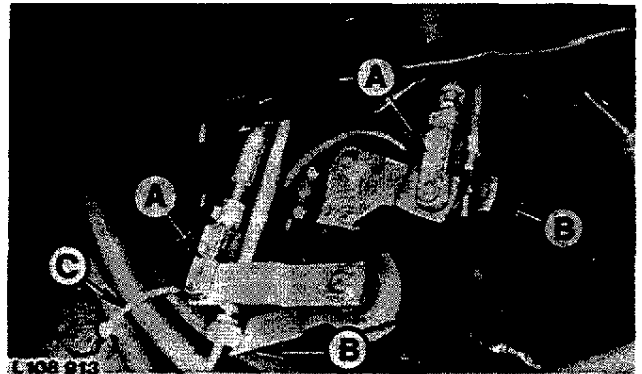
L116556-LB31025AE-010287

DISCONNECTING SHIFT RODS (Tractors With SG2 Cab)

Remove safety strap (A) and snap rings (B).

Remove rear shift rods from bores and tie together with front shift rods.

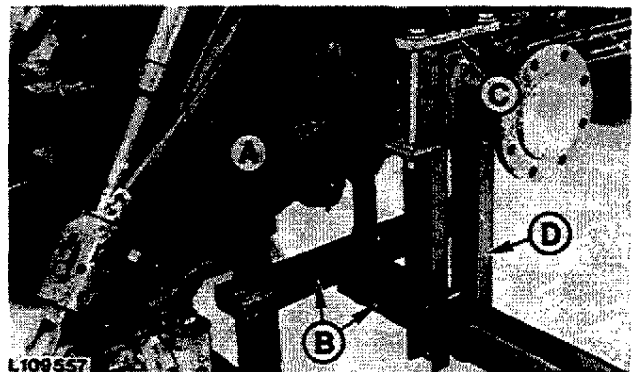
Remove plastic strap (C).



L108913-LB31025AE-010287

ATTACHING SPLITTING STAND TO FINAL DRIVE HOUSING

Secure splitting stand D-05007ST (B) together with adapter D-05106ST (D) and one retaining bracket plate (C) (T25671) to final drive housing (A).

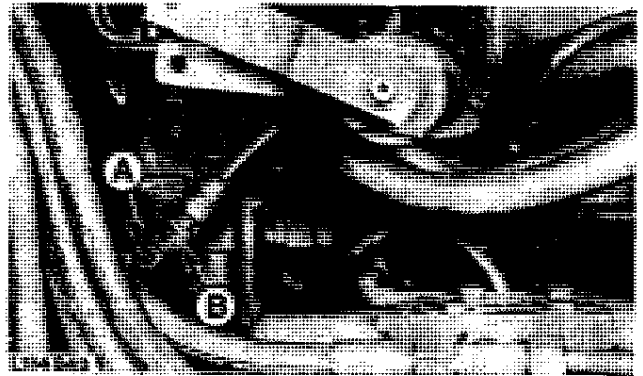


L109557-LA61025AE-001085

DISCONNECTING BRAKE LINE FROM BRAKE HOUSING

Disconnect brake line (B) at elbow fitting (A).
Remove elbow fitting (A).

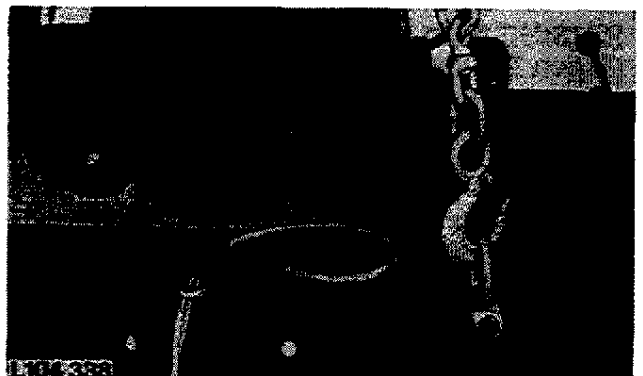
NOTE: Seal open ends with plastic plugs.



L114843-LB21025AE-010886

RAISING RIGHT-HAND SIDE OF SG2 CAB (When Equipped)

Attach a commercially available lifting eye to rear panel and lift SG2 cab approx. 100 mm (4 in.) using a suitable hoist.



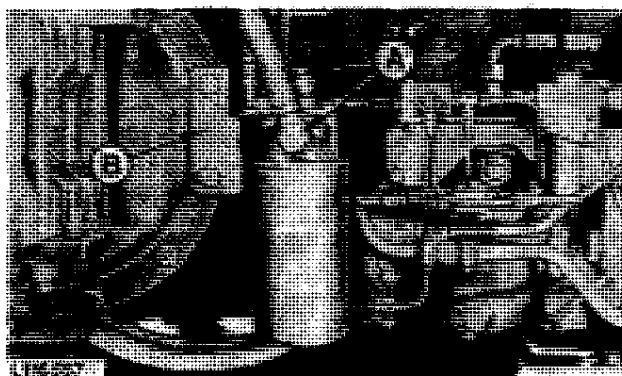
L104338-LB31025AE-010287

REMOVING RETURN FLOW FILTER (When Equipped)

Remove both hollow screws (A) of hydraulic lines.

Remove bracket (B) at final drive housing.

NOTE: Seal open ends with plastic plugs.



L116557-LB31025AE-010287

REMOVING ATTACHING HEX. NUTS OF FRONT CAB MOUNTINGS (Tractors With MC1 Cab)

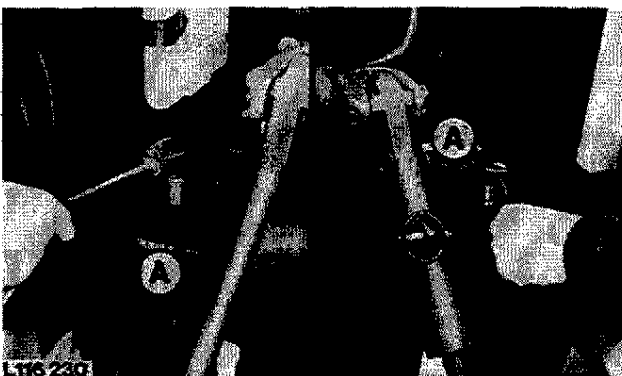
A—Hex. nuts



L116555-LB31025AE-010287

REMOVING CAP SCREWS OF REAR CAB MOUNTINGS (Tractors With MC1 Cab)

A—Cap screws

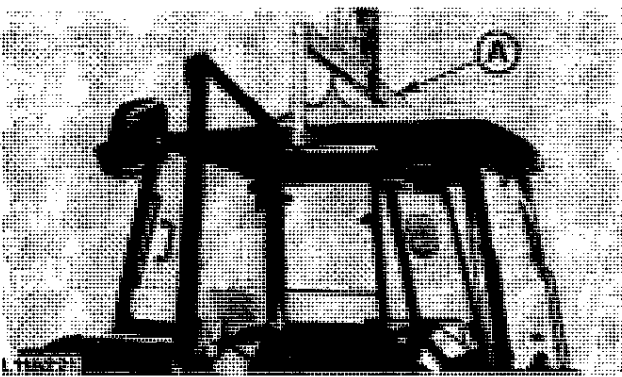


L116230-LB31025AE-010287

RAISING MC1 CAB (When Equipped)

Raise rear of cab approx. 50 mm (2 in.) using a self-manufactured holding device (A).

NOTE: Manufacture a holding device as shown under "SPECIAL TOOLS (Self-Manufacture)".



L116221-LB31025AE-010287

REMOVING CAP SCREWS FROM FINAL DRIVE HOUSING

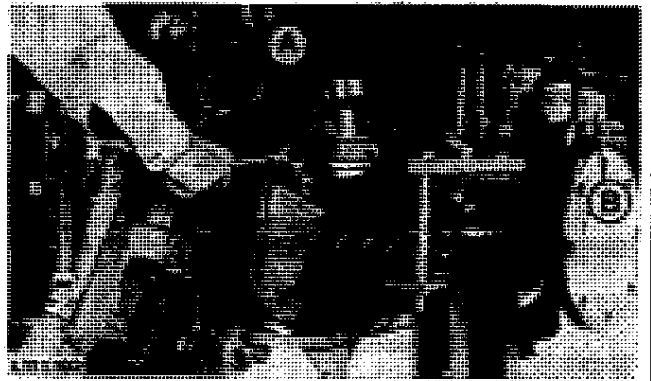
SAFELY support SG2 cab (when equipped) by placing a wooden block (B) between front right-hand mounting and frame.

On tractors with SG2 cab, remove retaining bracket (A) of pressure lines.



CAUTION: On tractors with heavy-duty final drives, do not remove the screws, as otherwise brake housing can drop down.

Move final drive housing away together with brake housing, when equipped.



L111192, L116558-LB31025AE-010287

TRACTORS WITH SG2 CAB



CAUTION: Before removing the left-hand final drive, right-hand final drive must be attached to transmission case to prevent SG2 cab from tilting (danger of accidents!).

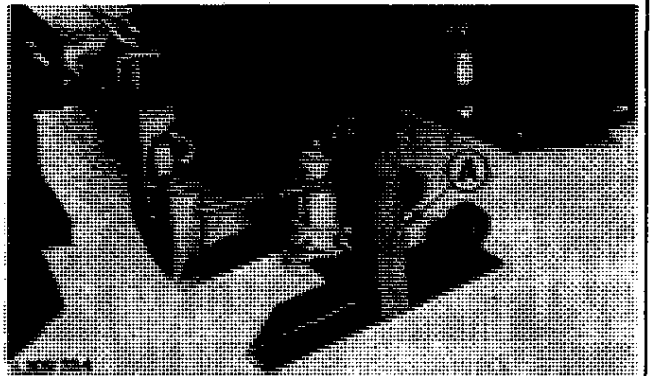
TEILEZ-LB31025FE-010287

REMOVING LEFT-HAND FINAL DRIVE

Raise rear left-hand corner of tractor using universal support stand JT05725 (A).

Remove rear wheel.

Remove stabilizer chain retaining bracket.

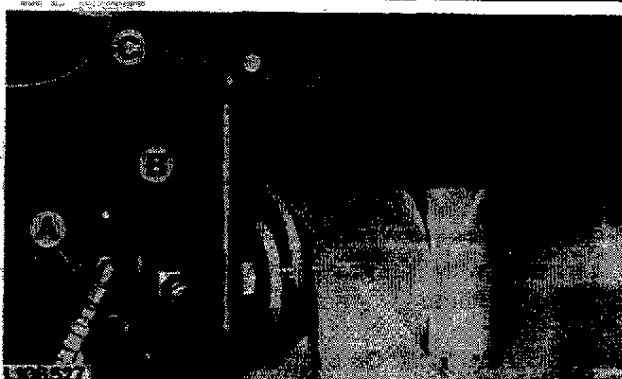


L116558-LB31025FE-010287

DISCONNECTING BRAKE HOSE AND DIFFERENTIAL LOCK ROD (Tractors With SG2 Cab)

Unscrew brake hose (A) and seal open ends with plastic plugs.

Remove spring clip (C) and unhook rod (B) from top bore.



L108527-LB31025AE-010287

REMOVING AUXILIARY FUEL TANK (When Equipped)

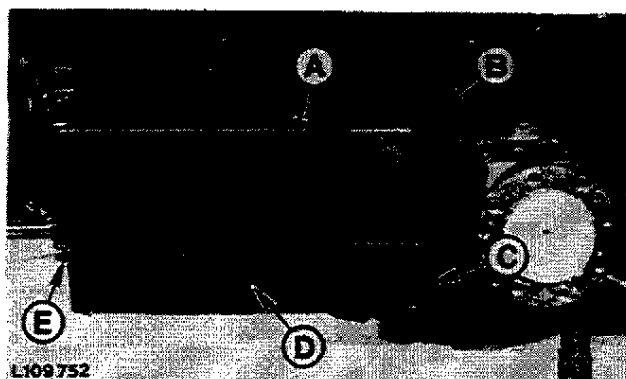
Remove cover (A).

Unscrew attaching screw (E).

Remove hex. nut (C).

Completely remove cap screw (B).

Lift out auxiliary fuel tank (D).

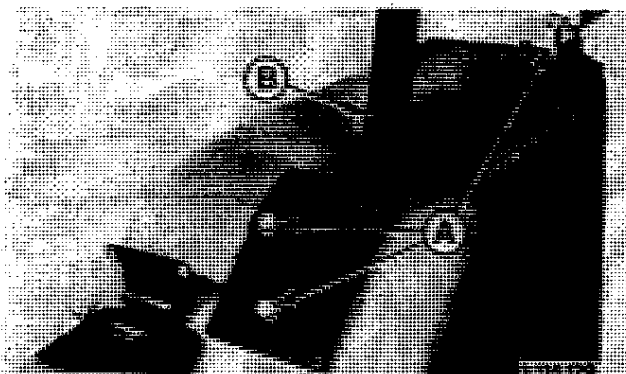


L109752-LA61025AE-170485

DISCONNECTING 4-POST ROLL GUARD AT FENDER (When Equipped)

Remove cap screws (A).

Raise right-hand side of roll guard (B) slightly.

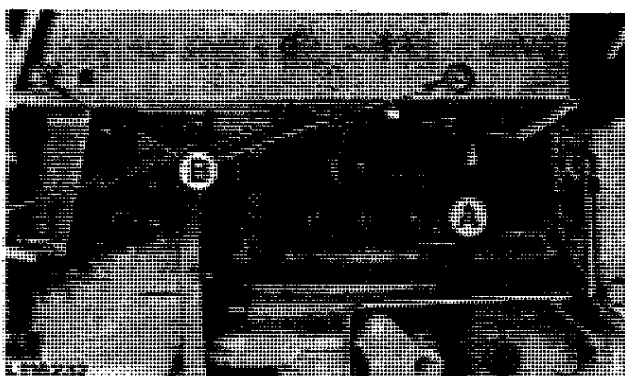


L115129-LB21025AE-010866

REMOVING FENDER (Tractors Without Cab)

Disconnect fender wiring harness (A).

Remove attaching screws (B).

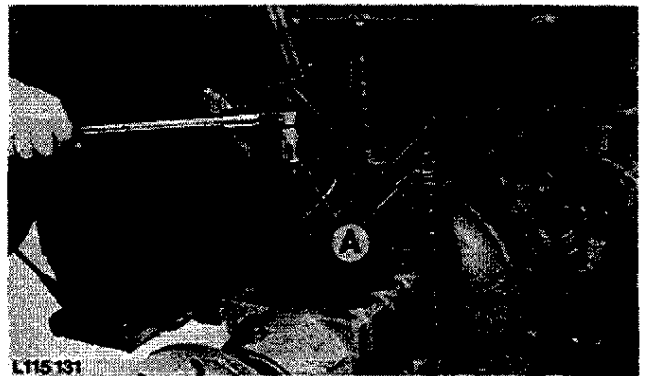


L116232-LB31025AE-010287

Tractor Separation

Tractors With Shell-Type Fenders

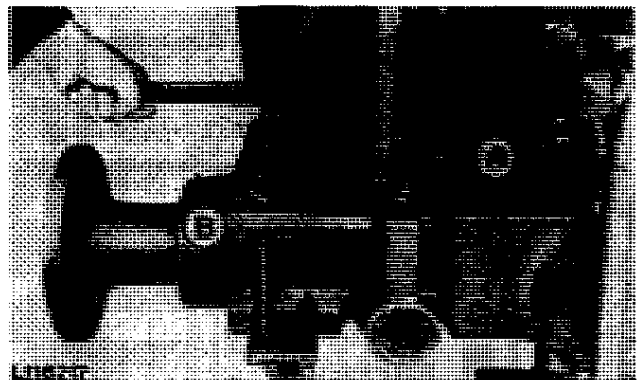
Remove both attaching hex. nuts (A).



L115131-LB21025AE-010886

Tractors With Wide Fenders

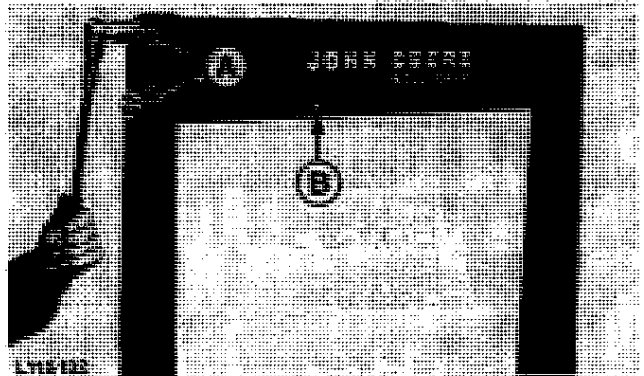
Remove the two attaching nuts (A) and cap screws (B).



L116217-LB31025AE-010287

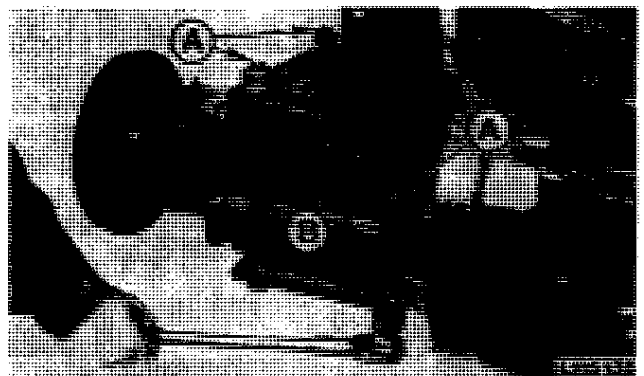
REMOVING LEFT-HAND SUPPORT OF 2-POST ROLL GUARD (When Equipped)

Remove both cap screws (A) of crossbar (B).



L115132-LB21025AE-000886

Remove cap screws (A) of left-hand support (B) at
final drive housing.

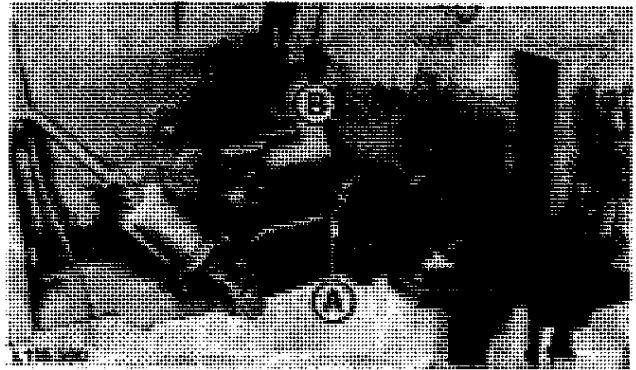


L115133-LB21025AE-000886

DISCONNECTING BRAKE LINE FROM BRAKE HOUSING (Tractors Without Cab or With MC1 Cab)

Disconnect brake line (A) at elbow fitting (B).

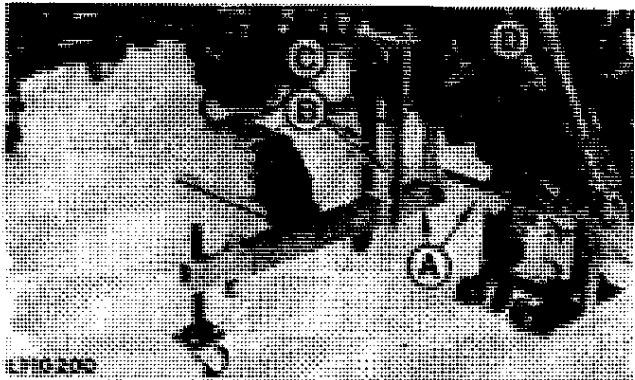
NOTE: Seal open ends with plastic plugs.



L116560-LB31025AE-010287

ATTACHING SPLITTING STAND TO FINAL DRIVE HOUSING

Secure splitting stand D-05007ST (A) together with adapter D-05106ST (B) and one retaining bracket plate (C) (T25671) to final drive housing (D).



L110200-LA61025AE-001085

RAISING LEFT-HAND SIDE OF SG2 CAB (When Equipped)

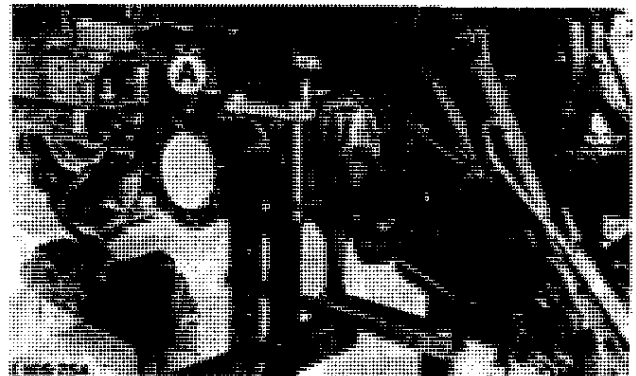
Attach a commercially available lifting eye to rear panel and lift SG2 cab approx. 100 mm (4 in.) using a suitable hoist.



L104818-LB31025AE-010287

SAFELY SUPPORTING SG2 CAB (When Equipped)

SAFELY support the cab by placing a wooden block (A) between front left-hand mounting and frame.



L109754-LB31025AE-010287

REMOVING CAP SCREWS FROM FINAL DRIVE HOUSING

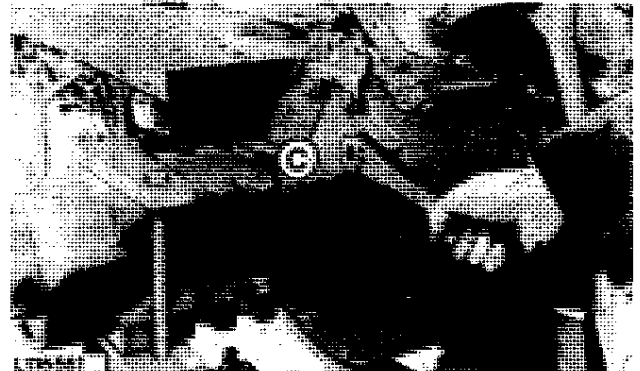
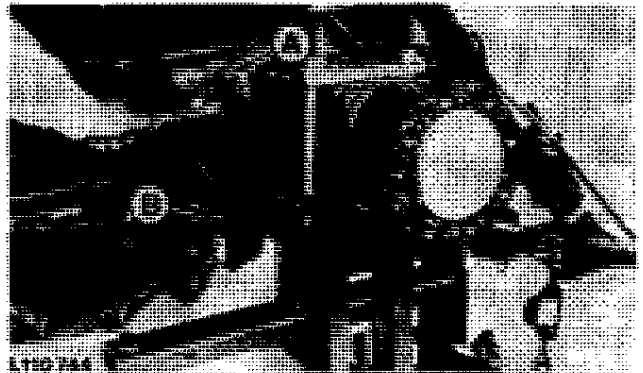
On tractors with auxiliary fuel tank, remove retaining brackets (A and B).

On tractors without cab, remove toothed quadrant (C) of handbrake.



CAUTION: On tractors with heavy-duty final drives, do not remove the screws as otherwise brake housing can drop down.

Move final drive housing away together with brake housing; when equipped.



L110744, L116561-LB31025AE-010287

INSTALLING FINAL DRIVES

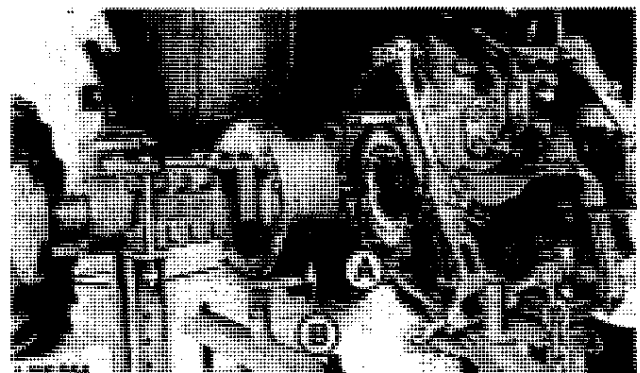
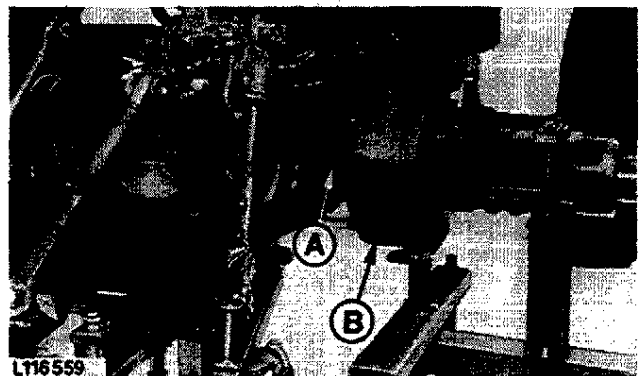
Thoroughly clean sealing surface of transmission case and fit a new gasket.

Attach final drive assembly to transmission case using splitting stand D-05007ST.

IMPORTANT: Before installing final drive assembly, ensure that pressure ring is seated flush against stop in brake housing.

NOTE: Make sure that drive shaft splines engage with planetary gears and that dowel pins in transmission case are aligned with bores in housing.

A—Drive shaft
B—Brake housing (when equipped)



L116559, L116564-LB31025AE-010287

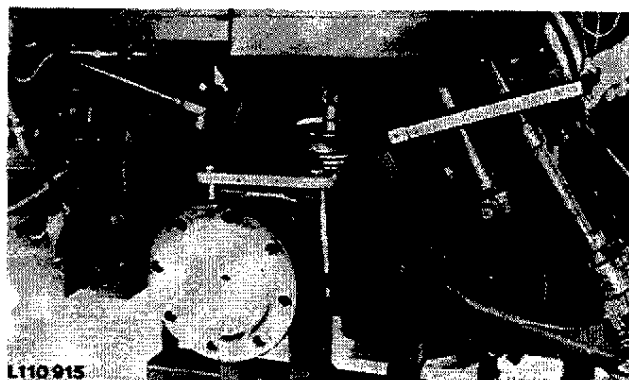
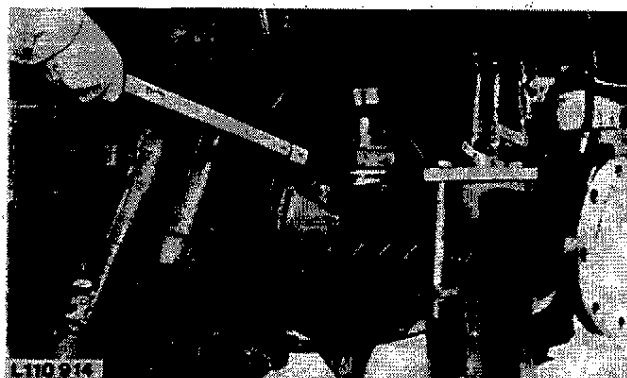
SECURING FINAL DRIVES

Tractors With SG2 Cab

Reinstall retaining brackets.

Tighten cap screws to 120 Nm (85 ft-lb).

Complete installation, reversing removal procedure.



L110914, L110915-LB31025AE-010287

Tractors Without Cab or With MC1 Cab

Reinstall handbrake quadrant and bracket.

Tighten cap screws to 120 Nm (85 ft-lb).

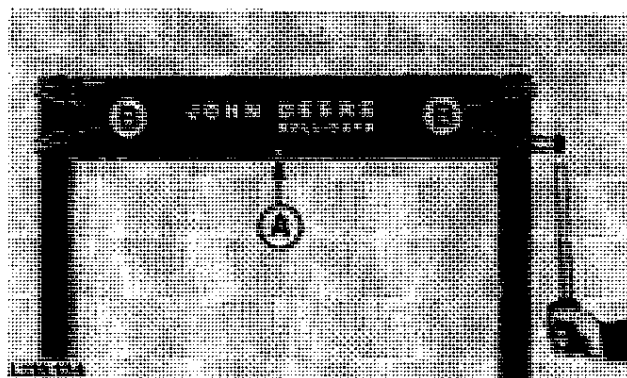
Complete installation, reversing removal procedure.



L116562, L116563-LB31025AE-010287

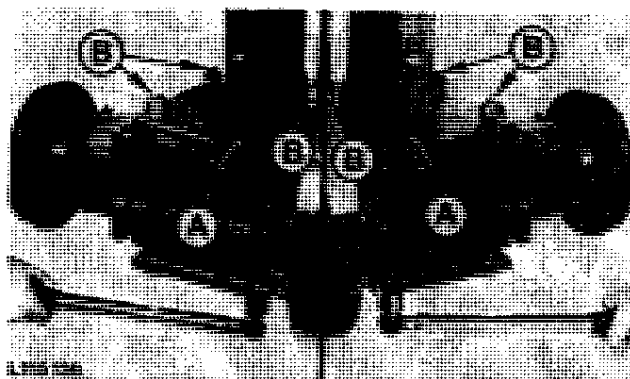
SECURING 2-POST ROLL GUARD (When Equipped)

First tighten cap screws (A) of crossbar (B) to 230 Nm (170 ft-lb).



L115134-LB31025AE-010287

Then tighten cap screws (B) of posts (A) at final drive housings to 230 Nm (170 ft-lb).



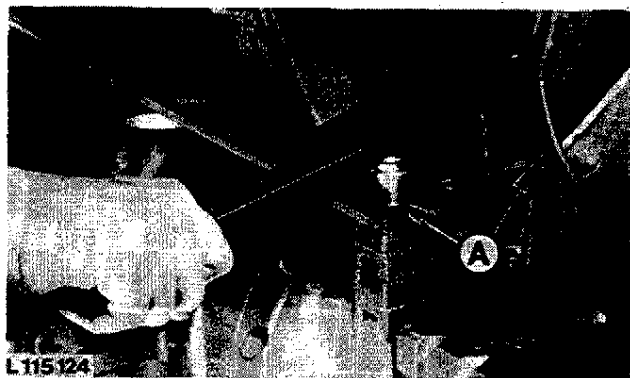
L115136-LB31025AE-010287

SECURING FENDERS (Tractors Without Cab)

Tractors With Shell-Type Fenders

Tighten hex. nuts (A) uniformly to 120 Nm (85 ft-lb).

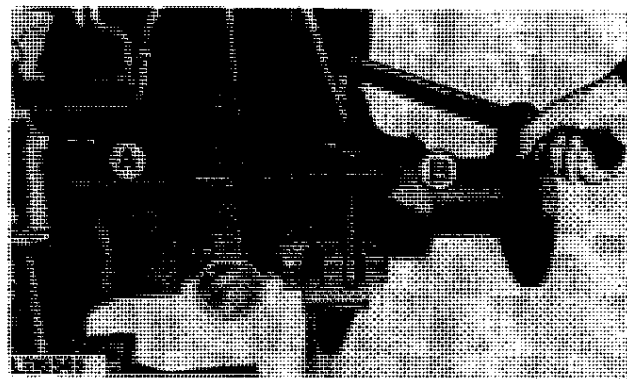
On tractors with 2-post roll guard, tighten cap screws to 230 Nm (170 ft-lb).



L115124-LB31025AE-010287

Tractors With Wide Fenders

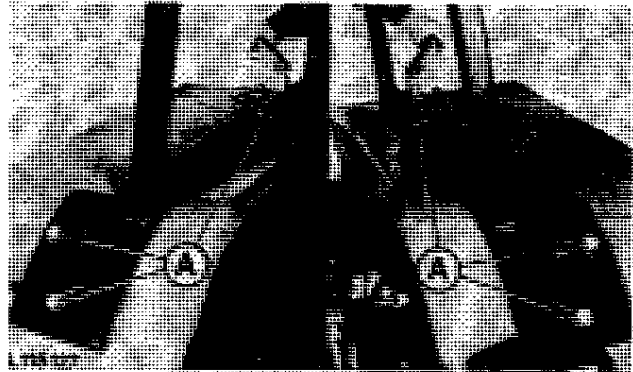
Tighten hex. nuts (A) or cap screws (B) uniformly to 120 Nm (85 ft-lb).



L116549-LB31025AE-010287

SECURING 4-POST ROLL GUARD (When Equipped)

Tighten cap screws to 120 Nm (85 ft-lb).

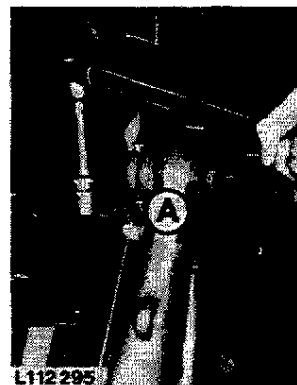


L115127-LB21025AE-010886

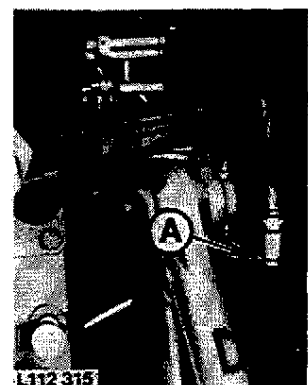
TIGHTENING REAR CAB MOUNTINGS (When Equipped)

Tractors With SG2 Cab

Tighten hex. nuts (A) to 200 Nm (145 ft-lb).



L112295

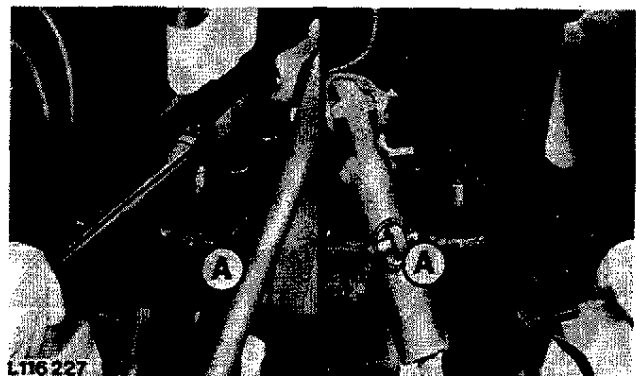


L112315

L112295.L112315-LB31025AE-010287

Tractors With MC1 Cab

Tighten cap screws (A) to 245 Nm (180 ft-lb).



L116227

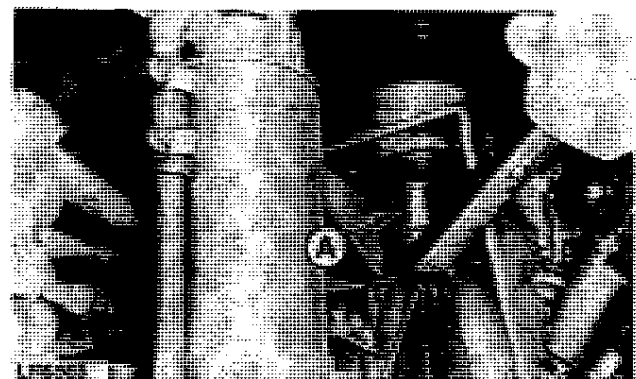
L116227-LB31025AE-010287

TIGHTENING FRONT CAB MOUNTINGS (When Equipped)

Tractors With SG2 Cab

Tighten both cap screws to 200 Nm (145 ft-lb).

A-Hex. nut

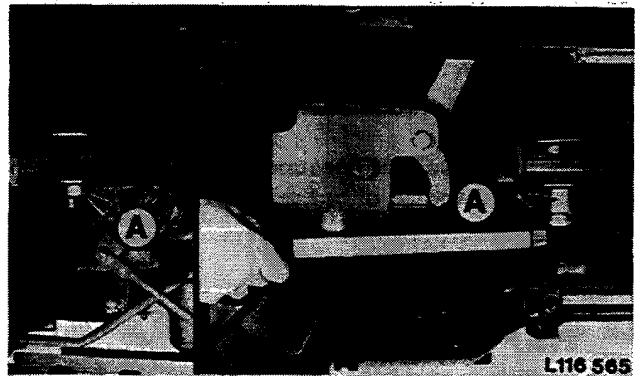


L116569-LB31025AE-010287

Tractor Separation

Tractors With MC1 Cab

Tighten both hex. nuts (A) to 245 Nm (180 ft-lb).



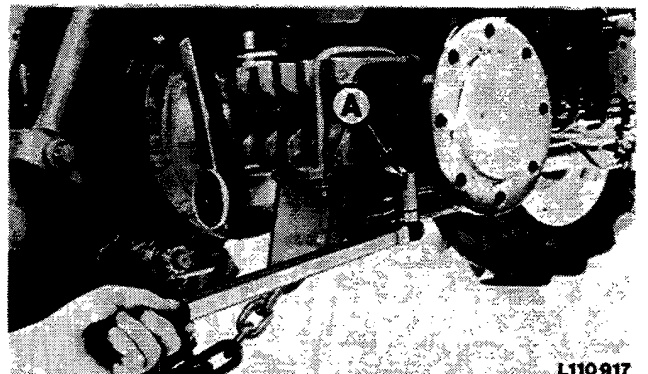
L116565-LB31025AE-010287

TIGHTENING RETAINING BRACKETS OF STABILIZER CHAINS (When Equipped)

Uniformly tighten hex. nuts (A) to 120 Nm (85 ft-lb).

Tighten oil drain plug to 135 Nm (100 ft-lb) (use a new seal ring).

Top up with transmission oil. See Group 15.



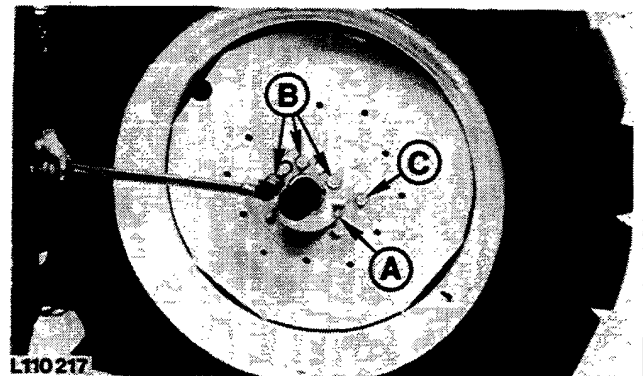
L110917-LB31025AE-010287

TIGHTENING REAR WHEEL BOLTS (Tractors With Rack-and-Pinion Axle)

Adjust to required tread width with adjustment bolt (A).

Tighten cap screws (B and C) to 400 Nm (300 ft-lb).

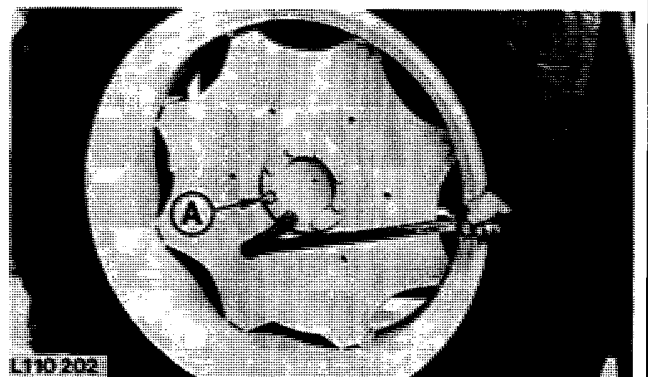
NOTE: Drive tractor approx. 50 m (160 ft) and tighten cap screws again to 400 Nm (300 ft-lb).



L110217-LA71025AE-180385

TIGHTENING REAR WHEEL BOLTS (Tractors With Flanged Rear Axle)

Tighten cap screws (A) to 400 Nm (300 ft-lb).

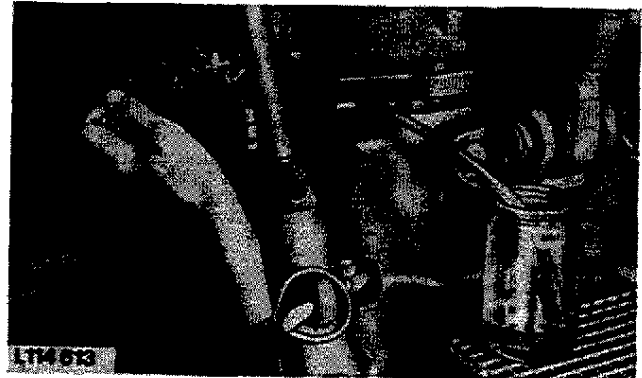


L110202-LA71025AE-180385

BLEEDING BRAKES

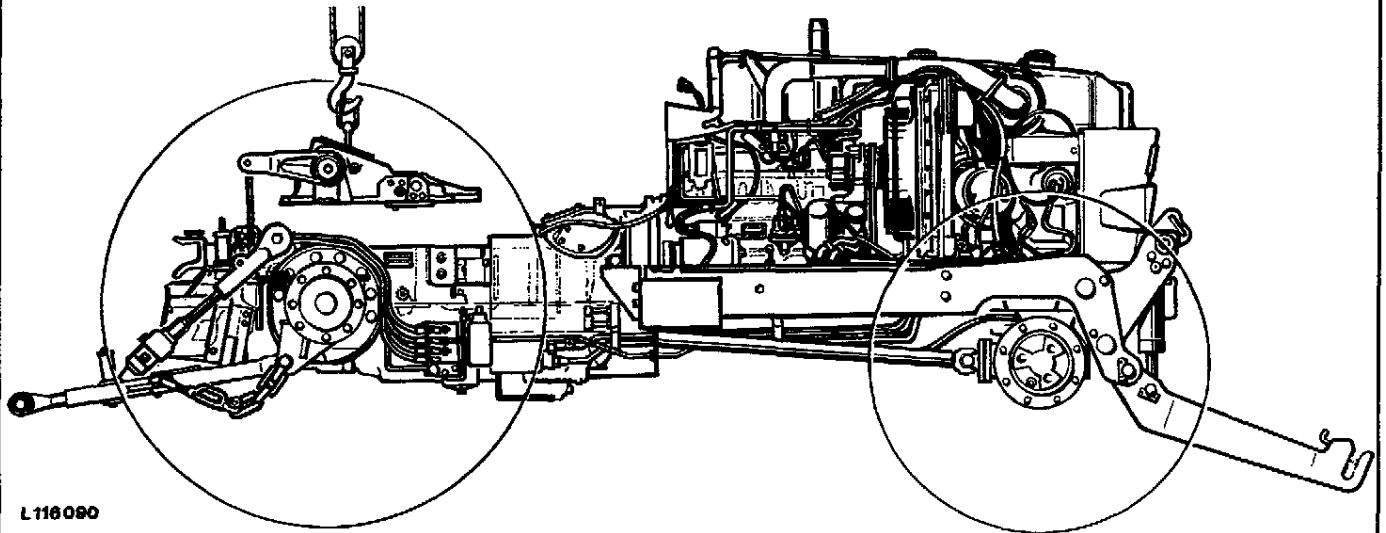
See Section 60, Group 25.

IMPORTANT: Connect ground straps to negative poles of batteries.



L114613-LB31025AE-010287

REMOVING ROCKSHAFT

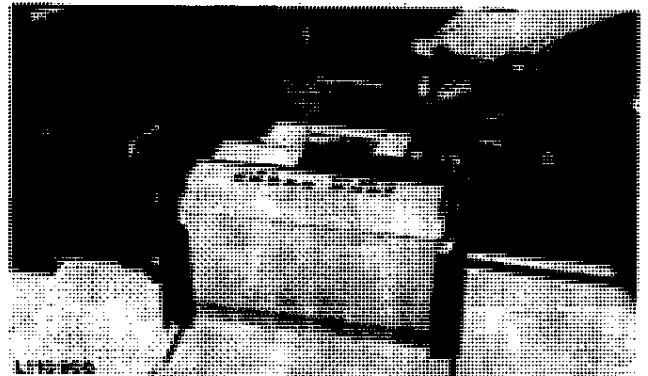


L116090-LB31025AE-010287

REMOVING SG2 CAB (When Equipped)

Refer to "Removing SG2 Cab".

Disconnect battery ground straps.



L110906-LB31025CE-010267

DISCONNECTING LEFT-HAND ROCKSHAFT LIFT CYLINDER (Tractors With Increased Lifting Capacity)

Disconnect start safety switch cables (A).
Remove hollow bolt (B) and pressure hose.
Drive out spring pins (C) and then pull out pins (D).

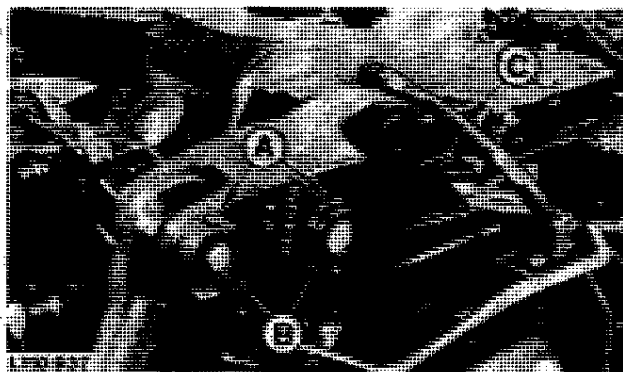


L110906-LB31025CE-010267

Tractor Separation

DISCONNECTING RIGHT-HAND ROCKSHAFT LIFT CYLINDER (Tractors With Increased Lifting Capacity)

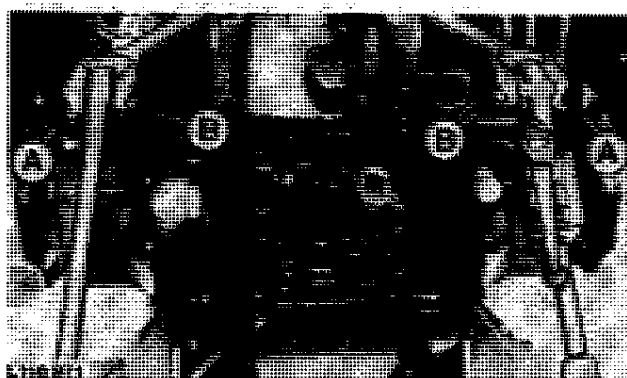
Drive out spring pins (A) and then pull out pins (B).
Remove return line (C).



L110937-LB31025AE-010287

DISCONNECTING LEFT AND RIGHT-HAND LIFT LINKS (Tractors Without Increased Lifting Capacity)

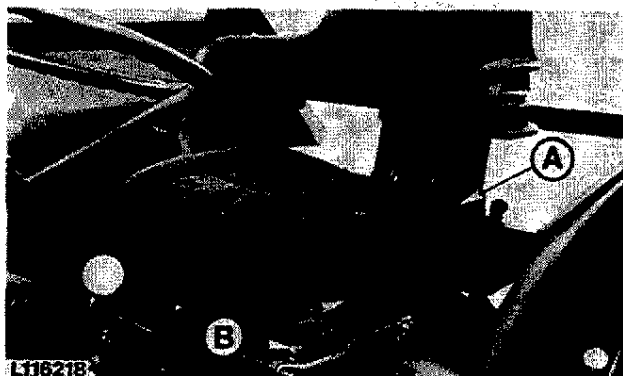
Remove cotter pins (A) and then pull out pins (B).



L116971-LB31025AE-010287

REMOVING OPERATOR'S SEAT (Tractors Without Cab or With MC1 Cab)

A—Operator's seat
B—Cap screws

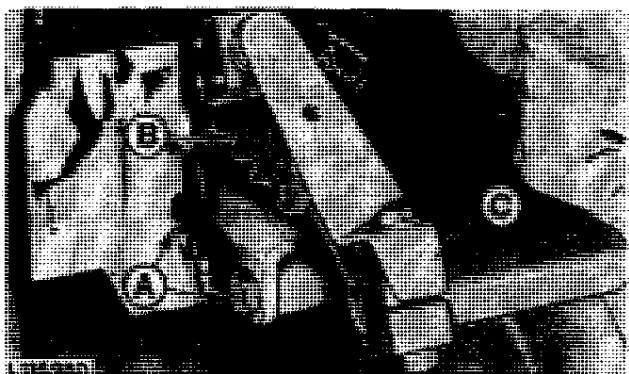


L116218-LB31025AE-010287

DISCONNECTING HANDBRAKE LEVER (Tractors With MC1 Cab)

Remove cap screws (A) of quadrant (B) from final drive housing.

Loosen clamping bolt and pull handbrake lever (C) from shaft.

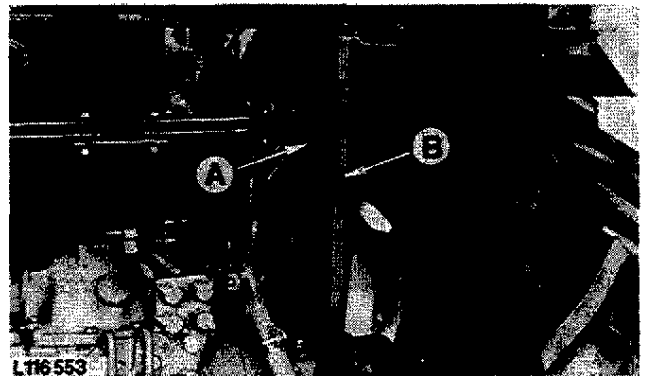


L116980-LB31025AE-010287

Tractor Separation

REMOVING ROCKSHAFT LIFT LINK ADJUSTER (Tractors With MC1 Cab)

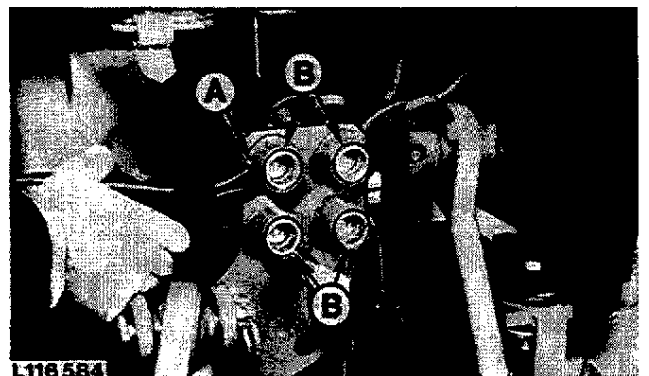
Remove cap screws (A) and lift off adjuster (B).



L116553-LB31025AE-010287

REMOVING QUICK COUPLERS (Tractors With MC1 Cab)

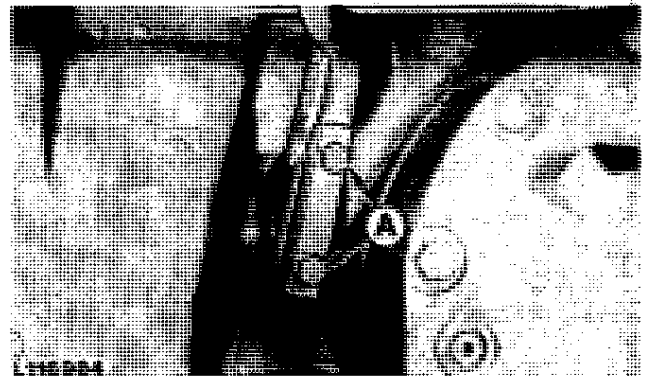
Remove snap rings (A) and lift quick couplers (B) out of mounting plate.



L116584-LB31025AE-010287

REMOVING DIFFERENTIAL LOCK LEVER (Tractors With MC1 Cab)

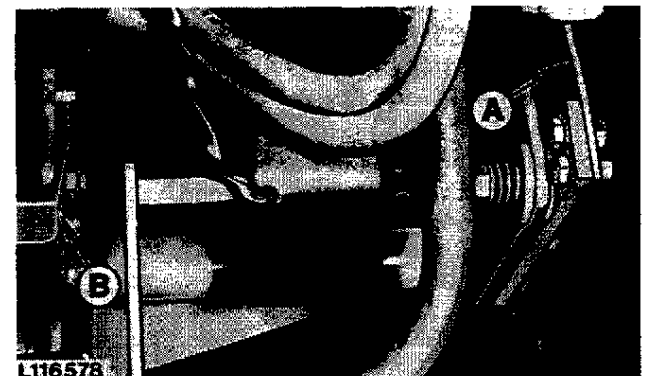
Remove cap screws (A).



L116584-LB31025AE-010287

REMOVING ROCKSHAFT CONTROL LEVER (Tractors With MC1 Cab)

Remove control lever (A) and selector lever (B).



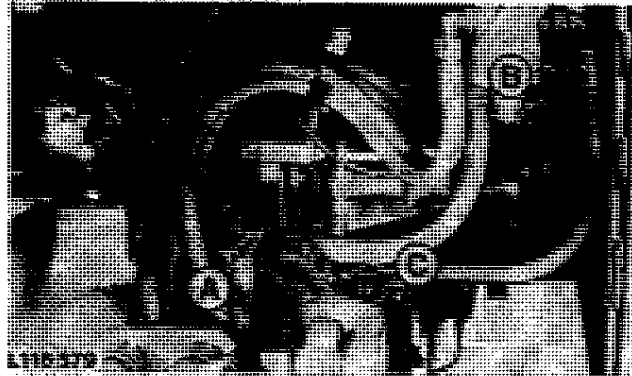
L116578-LB31025AE-010287

DISCONNECTING HYDRAULIC LINES (Tractors With MC1 Cab)

Disconnect return line (A) at rockshaft housing.

Disconnect pressure line (B) at elbow fitting of selective control valves.

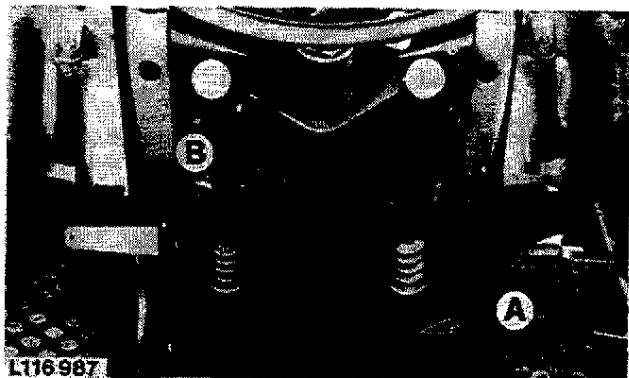
Disconnect PTO connecting rod (C), when equipped.



L116579-LB31025AE-010287

REMOVING PLATFORM PLATE (Tractors With MC1 Cab)

Remove platform plate (A) together with steering column cover (B).



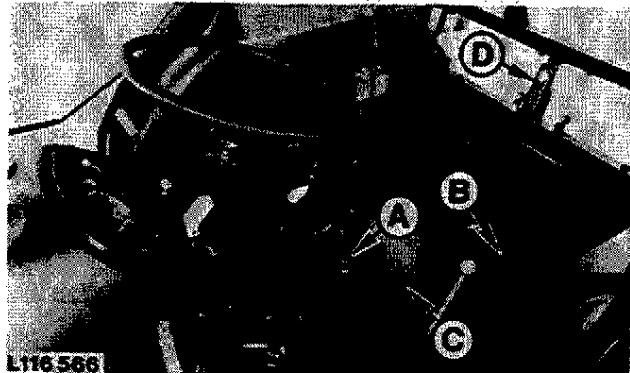
L116987-LB31025AE-010287

REMOVING LEFT-HAND AND RIGHT-HAND PLATFORM PLATES (Tractors With MC1 Cab)

Remove rate-of-drop adjusting screw (A).

Remove left-hand (B) and right-hand (C) platform plates.

Finally remove rear plate (D).

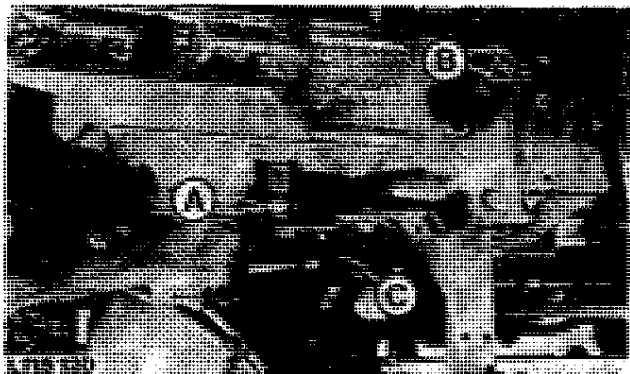


L116566-LB31025AE-010287

DISCONNECTING RETURN LINE AND S.C.V. RETAINING ROD (Tractors Without Cab)

Disconnect return line (A) and selective control valve retaining rod (C) at rockshaft housing.

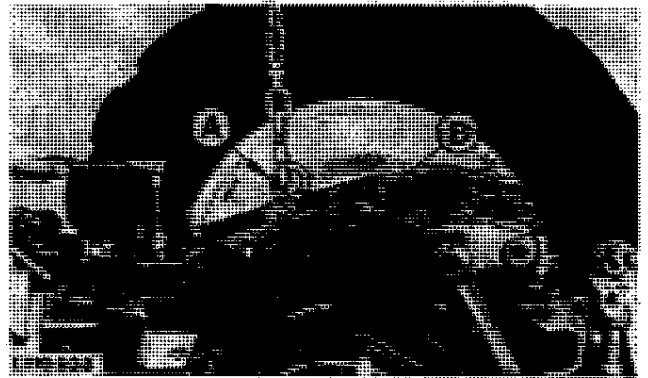
Disconnect start safety switch cable (B).



L115120-LB31025AE-010287

REMOVING ATTACHING SCREWS

Screw lifting eye JT05503 (A) into rockshaft housing (B).



L110938-LB31025AE-010287

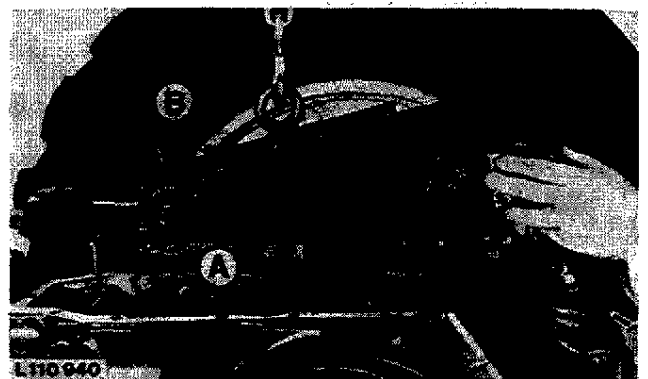
LIFTING OFF ROCKSHAFT HOUSING

On tractors without cab or with MC1 cab, shift rockshaft selector lever to position "MAX".

On tractors with SG2 cab, pull rockshaft selector lever upwards.

Using a commercially available hoist, raise rockshaft housing (B) carefully, so that control linkage roller slides along rockshaft cam (A).

NOTE: Cover transmission case after having removed rockshaft housing.



L110940



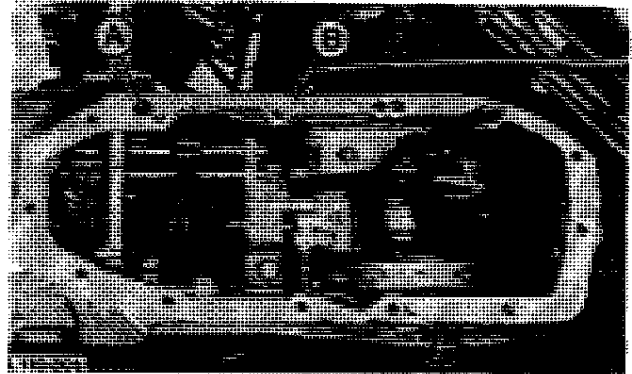
L116223

L110940,L116223-LB31025AE-010287

INSTALLING ROCKSHAFT

Thoroughly clean sealing surfaces of rockshaft housing and transmission case.

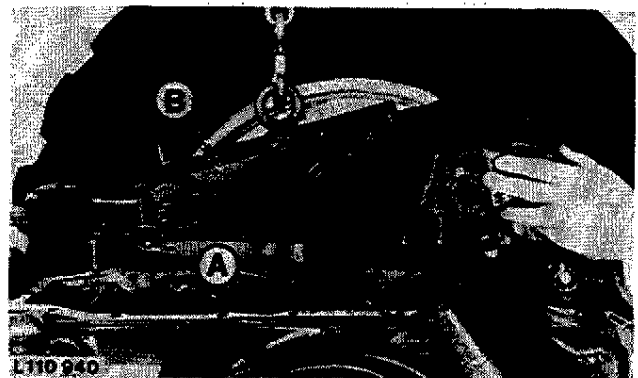
Position new gasket (B) and place seal ring (A) on oil passage.



L110001-LA71025AE-050385

INSTALLING ROCKSHAFT HOUSING

Position rockshaft housing (B) over transmission case with lifting gear. Press rockshaft selector lever (C) down and lower carefully, making sure that control linkage with roller slides along rockshaft cam (A).

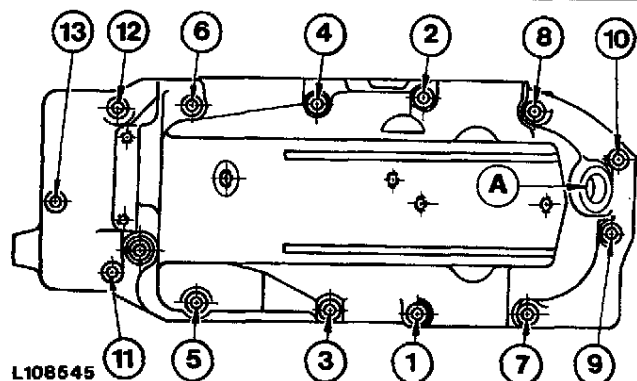


L110940,L109768-LA11025AE-080885

TIGHTENING ATTACHING SCREWS

Tighten attaching screws in sequence shown. Tighten screws to 120 Nm (85 ft-lb).

A—Oil filler neck bore



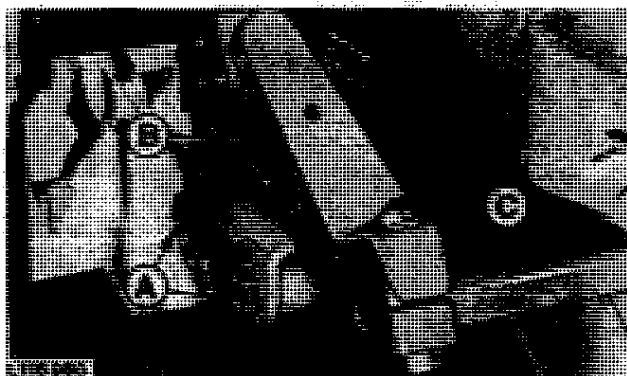
L108545

L108545-LA11025AE-000885

TIGHTENING HANDBRAKE QUADRANT ON FINAL DRIVE HOUSING (Tractors With MC1 Cab)

Tighten both cap screws (A) to 120 Nm (85 ft-lb).

A—Cap screws
B—Quadrant
C—Handbrake lever



L116980-LB31025AE-010287

FINAL ASSEMBLY

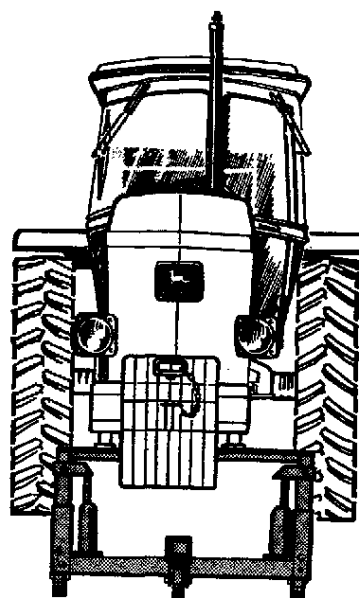
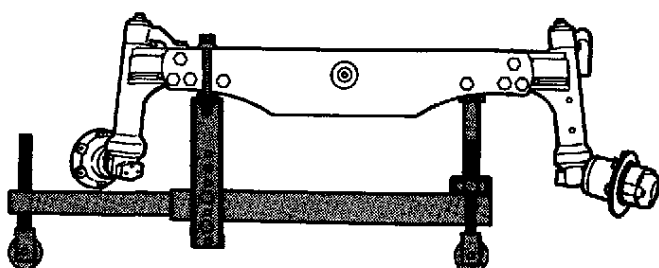
Complete assembly, reversing removal procedure.

Adjust rockshaft (see Section 70, Group 15).

**IMPORTANT: Connect ground straps to negative poles
of batteries.**

TEILEZ-LA71025LE-050385

REMOVING FRONT AXLE



L112823

L112823-LB21025AE-010886

DISCONNECTING DRAG LINK AT STEERING SHAFT ARM (Tractors with Manual or Power Steering)

- A-Steering shaft arm
- B-Slotted nut
- C-Drag link

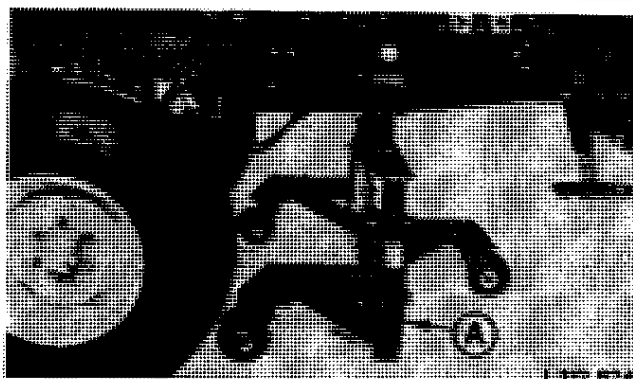


L116097-LB31025AE-010287

LIFTING TRACTOR FRONT END

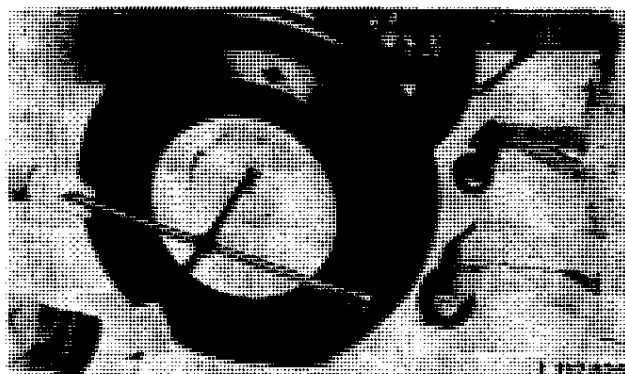
Secure splitting stand JT05724 (A) to both side frames or to front axle carrier.

NOTE: Modify both splitting stand supports as shown under "SPECIAL TOOLS (Self-Manufacture)".



L112824-LB31025AE-010287

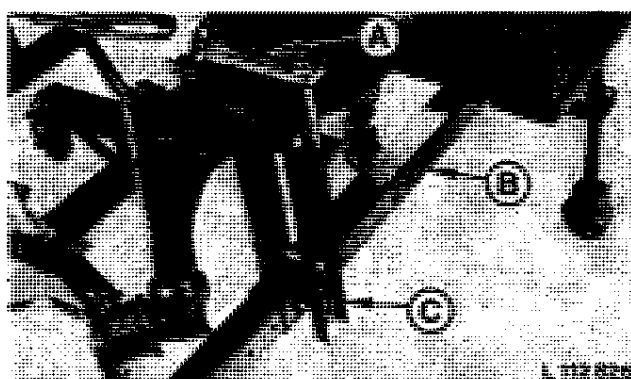
REMOVING FRONT WHEELS



L112825-LB21025AE-010886

ATTACHING SPLITTING STAND TO FRONT AXLE

Secure splitting stand D-05007ST (B) to front wheel together with adapter D-05106ST (C) and one retaining bracket plate (A) (T25671).

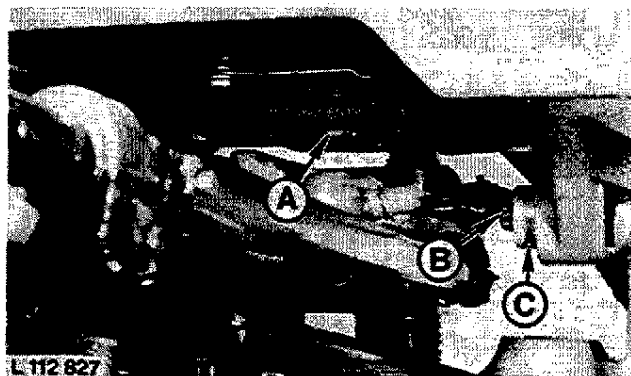


L112826-LB21025AE-010886

REMOVING METAL COVER PLATE

Remove hydraulic pump metal cover plate (A).

Remove cap screw (B) and washer (C) from bearing pin.



L112827-LB21025AE-010886

DISCONNECTING HYDRAULIC LINES

Disconnect steering cylinder hydraulic lines at connectors (A).

NOTE: Seal open ends with plastic plugs.



L112828-LB21025AE-010886

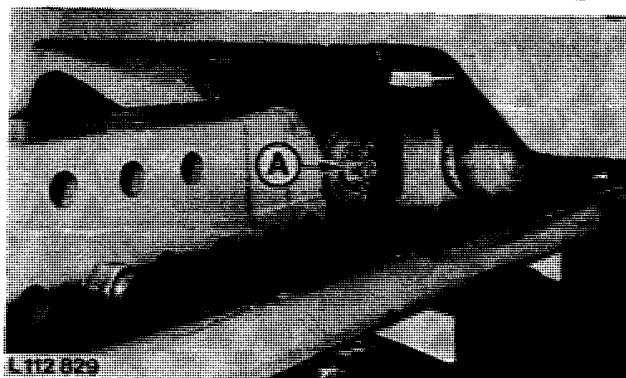
REMOVING SLOTTED NUT

Remove slotted nut (A).

Pull out special cap screw with shims to the front.

NOTE: Note number of shims for reassembly.

Roll front axle out to the rear.



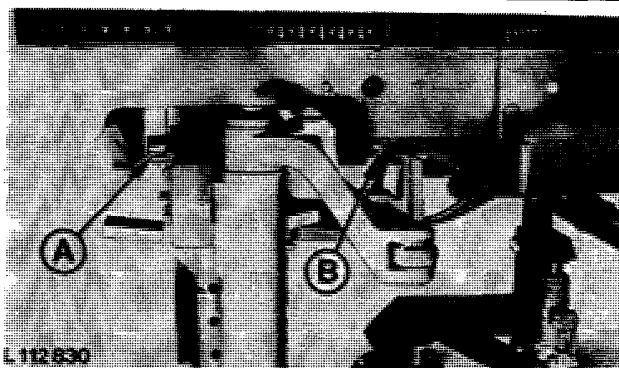
L112 829

L112829-LB21025AE-010886

INSTALLING FRONT AXLE

Position front axle assembly under tractor front end.

Slide axle center on pin (B), and at the same time guide pivot tube (A) in bore of front axle carrier.



L 112 830

L112830-LB21025AE-010886

ADJUSTING AXIAL PLAY

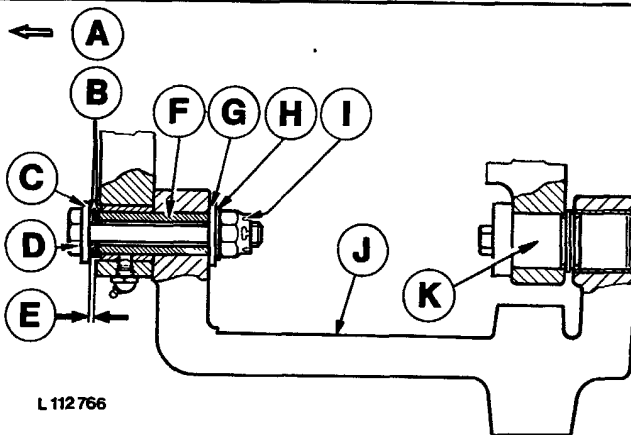
A—Tractor front end
B—Shims (use as reqd.)
C—Washer
D—Special cap screw
E—Axial free play
F—Front pivot tube

G—Washer
H—Disk
I—Slotted nut
J—Axle center
K—Pin

Insert special cap screw, washer and a number of shims from front through front pivot tube. Install washers and slotted nut and tighten to 300 Nm (220 ft-lb).

Check whether 0 to 0.4 mm (0 to 0.015 in.) axial free play is obtained. Adjust to obtain correct play by adding or removing shims.

NOTE: If cotter pin cannot be inserted into slotted nut when tightened to specified torque, tighten nut to next slot and insert cotter pin.



L 112 766

L112766-LB31025AE-010287

TIGHTENING BEARING PIN

Reinstall hydraulic pump metal cover (A).

Tighten cap screw (B) with washer on bearing pin to 100 Nm (75 ft-lb).

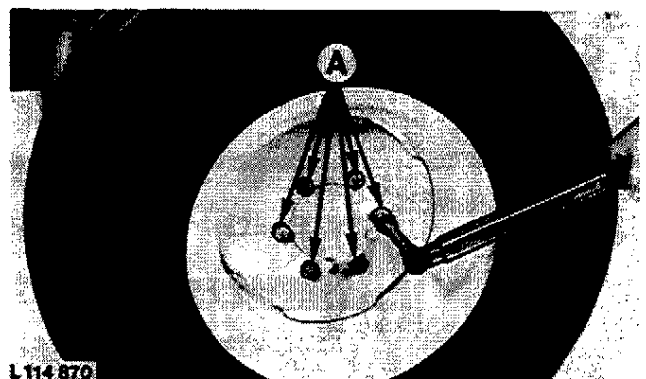
Connect hydraulic lines to steering cylinder.



L112827-LB21025BE-000886

INSTALLING FRONT WHEELS

Tighten wheel bolts (A) to 150 Nm (110 ft-lb).



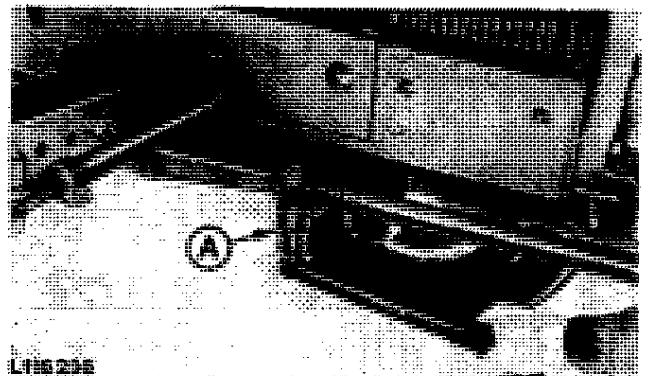
L114870

L114870-LB31025AE-010888

CONNECTING DRAG LINK TO STEERING SHAFT ARM (Tractors with Manual or Power Steering)

Tighten slotted nut (A) to 90 Nm (65 ft-lb) and insert cotter pin.

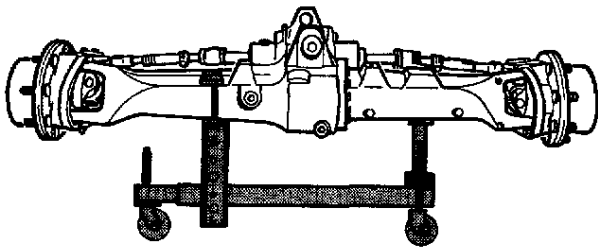
NOTE: If cotter pin cannot be inserted into slotted nut when tightened to specified torque, tighten nut to next slot and insert cotter pin.



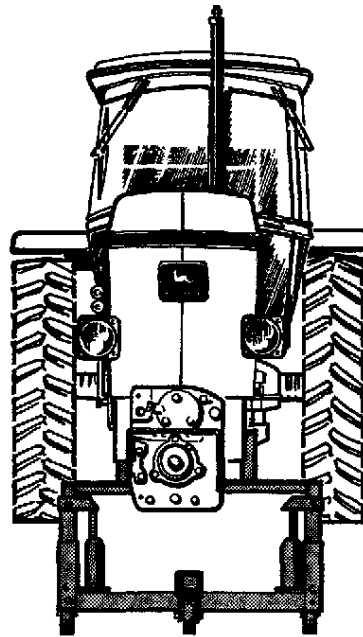
L116236

L116236-LB31025AE-011088

REMOVING FRONT WHEEL DRIVE AXLE



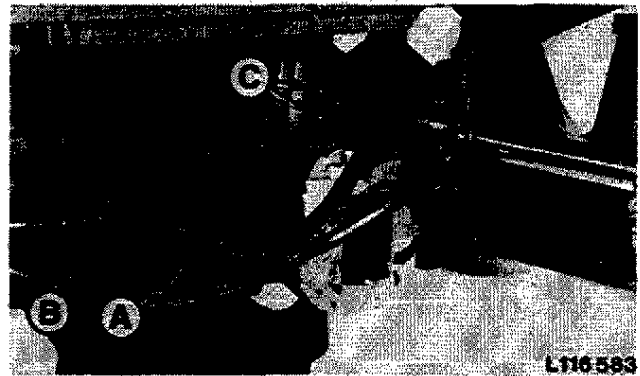
L 108 914



L108914-LA71025AE-260385

REMOVING U.J. DRIVE SHAFT ANTI-WRAP GUARD (When Equipped)

- A—Anti-wrap guard
- B—Universal-jointed drive shaft
- C—Hex. socket screws



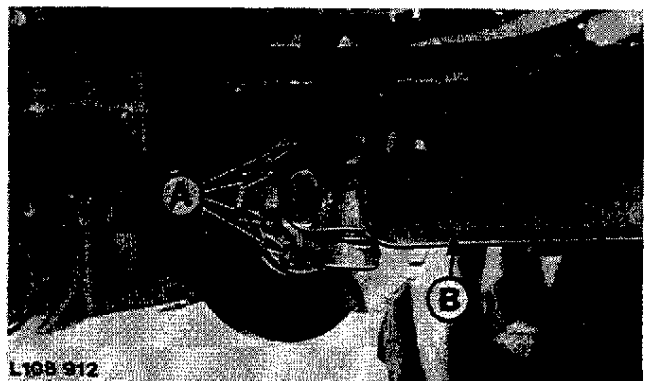
L116583

L116583-LB31025BE-010287

REMOVING UNIVERSAL-JOINTED DRIVE SHAFT

Remove attaching nuts (A) from flange of universal-jointed drive shaft (B).

Pull universal-jointed drive shaft down from rear clutch shaft.



L108 912

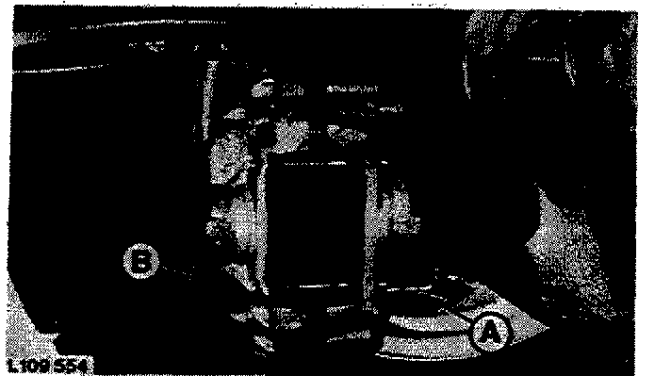
L108912-LA71025AE-000285

Tractor Separation

REMOVING BRAKE LINES (When Equipped)

Remove brake line (A) from brake housing (B).

NOTE: Seal open ends with plastic plugs.

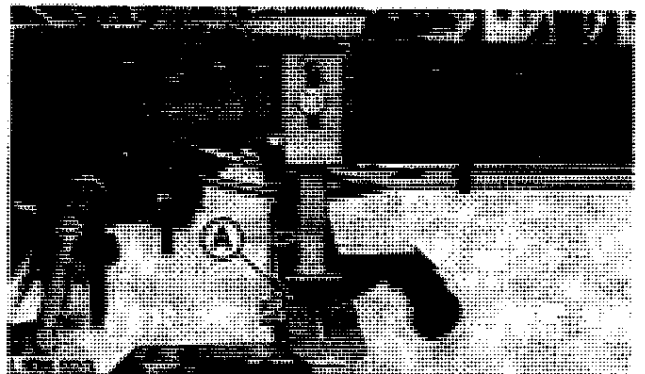


L109554-LA61025AE-130585

LIFTING TRACTOR FRONT END

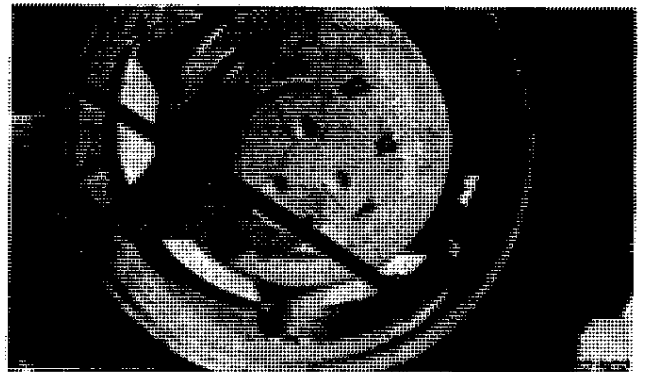
Secure splitting stand JT05724 (A) to both side frames or to front axle carrier.

NOTE: Modify both splitting stand supports as shown under "SPECIAL TOOLS (Self-Manufacture)".



L108923-LB31025AE-010287

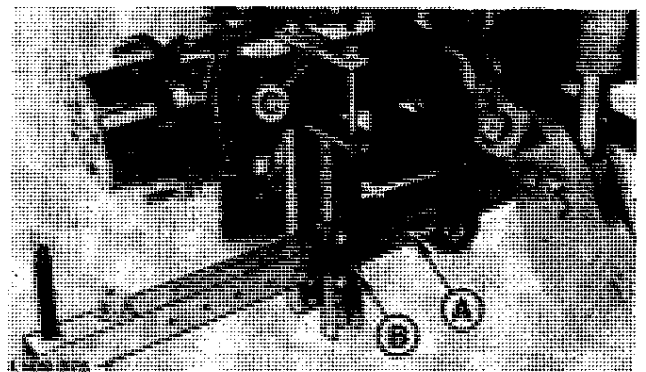
REMOVING FRONT WHEELS



L37502-LA71025AE-260385

ATTACHING SPLITTING STAND TO FRONT WHEEL DRIVE AXLE

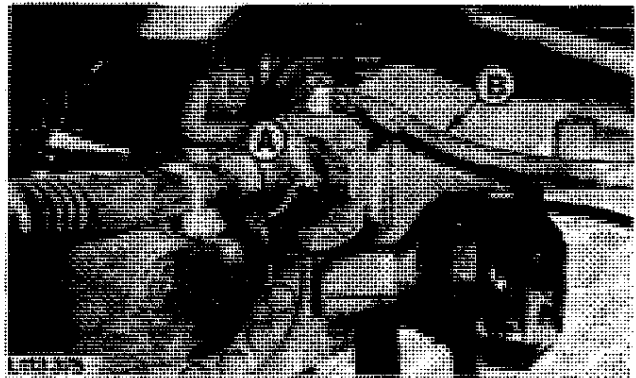
Secure splitting stand D-05007ST (A) to front wheel drive axle together with adapter D-05106ST (B) and one retaining bracket plate (C) (T25671).



L109875-LA61025AE-301085

REMOVING PRESSURE LINES

Remove hollow bolts (A) of pressure lines (B). Seal open ends with plastic plugs.



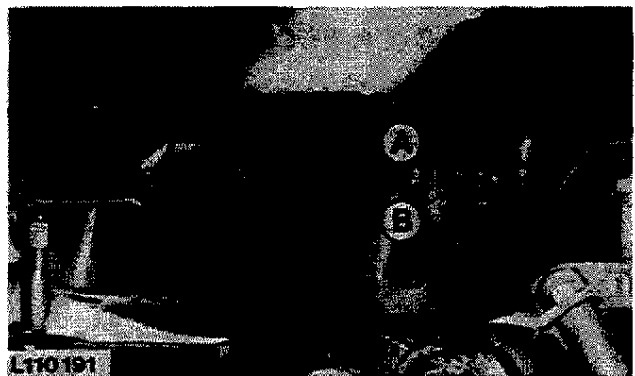
L113375-LA61025AE-280486

REMOVING SLOTTED NUT

Pull out cotter pin (A).
Remove slotted nut (B).
Pull out special cap screw with shims to the front.

NOTE: Note number of shims for reassembly.

Roll front wheel drive axle to the rear and remove.



L110191-LA71025AE-260385

INSTALLING FRONT WHEEL DRIVE AXLE

Position front wheel drive axle underneath tractor front end using splitting stand.



L110190-LA61025AE-301085

Slide axle to rear onto bearing pin (A) of front axle carrier and, at the same time, insert front wheel drive pivot tube (B) into bore of front axle carrier.



L108918-LA71025AE-000385

ADJUSTING AXIAL PLAY

- | | |
|------------------------|--------------------------|
| A—Tractor front end | G—Washer |
| B—Shims (use as reqd.) | H—Slotted nut |
| C—Washer | I—Washer |
| D—Special cap screw | J—Front wheel drive axle |
| E—Axial play | K—Pin |
| F—Front pivot tube | L—Front axle carrier |

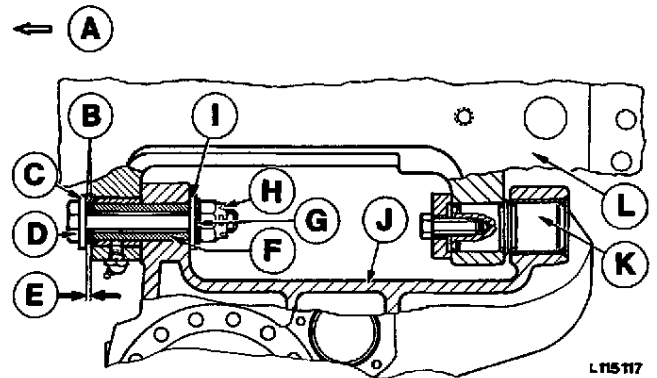
Insert special cap screw, washer and a number of shims from front through front pivot tube. Install washers and slotted nut and tighten to 300 Nm (220 ft-lb).

Check whether 0 to 0.5 mm (0 to 0.02 in.) axial play is obtained. Adjust correct play by adding or removing shims.

NOTE: If cotter pin cannot be inserted into slotted nut at specified torque, turn nut further to next slot and insert cotter pin.

Connect pressure lines to steering cylinder, using new seal rings.

Connect brake line to brake housing, using new seal rings.

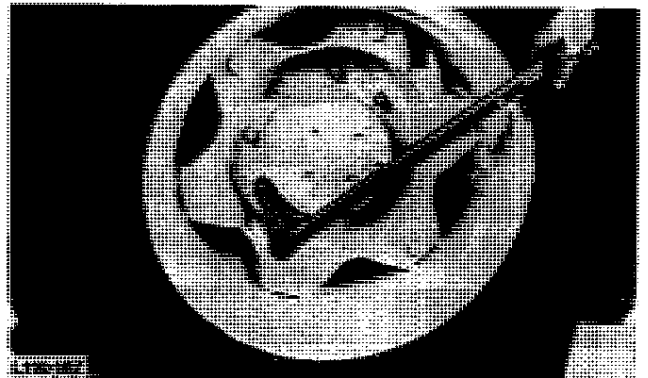


L115117

L115117-LB21025AE-010886

INSTALLING FRONT WHEELS

Tighten wheel nuts to 300 Nm (220 ft-lb).



L110187-LA71025AE-260385

INSTALLING UNIVERSAL-JOINTED DRIVE SHAFT

Tighten attaching nuts (A) to 75 Nm (55 ft-lb).

Reinstall universal-jointed drive shaft anti-wrap guard.

A—Attaching nuts
B—Universal-jointed drive shaft



L110005-LA71025AE-000385

BLEEDING UNIVERSAL-JOINTED DRIVE SHAFT BRAKE (When Equipped)

Run engine at 2100 rpm, and at the same time turn the steering wheel to-and-fro for approx. 2 minutes to fill main brake cylinder reservoir with oil.

To bleed brakes, loosen bleed screw and depress both brake pedals and slowly return to original position until oil being discharged through plastic hose is free from air bubbles.

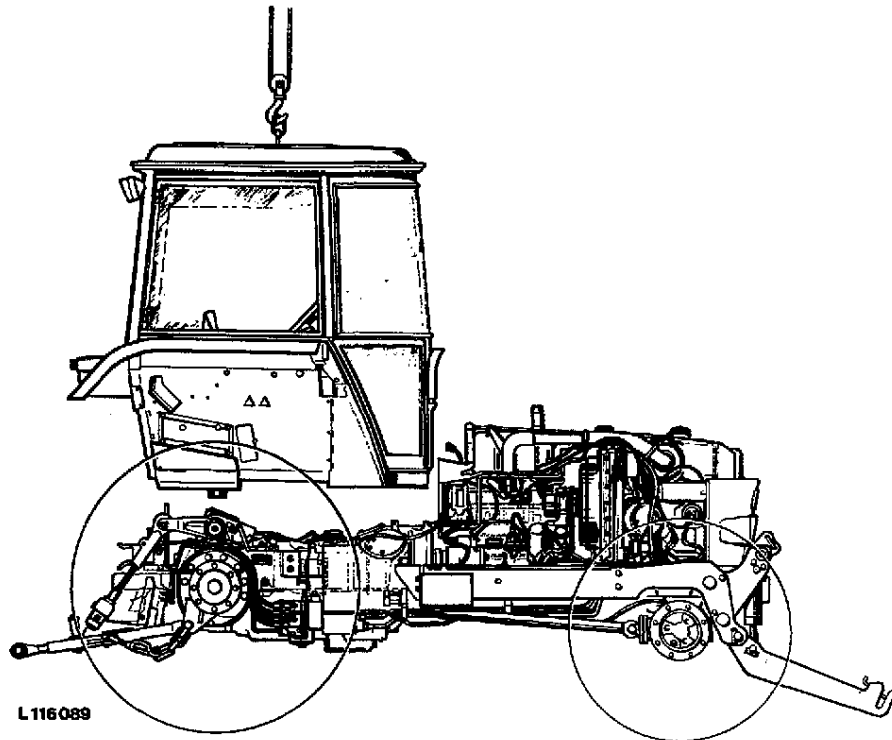
IMPORTANT: Never allow brake pedals to return quickly until brake is completely adjusted. By permitting brake pedals to return quickly, brake valve piston is released suddenly and damage may occur to valve as piston travel is not yet closely adjusted.

With brake pedals depressed, tighten bleed screw.



L106951-LB21025BE-010886

REMOVING SG2 CAB



L116089-LB31025AE-010287

DISCONNECTING BATTERY GROUND STRAPS



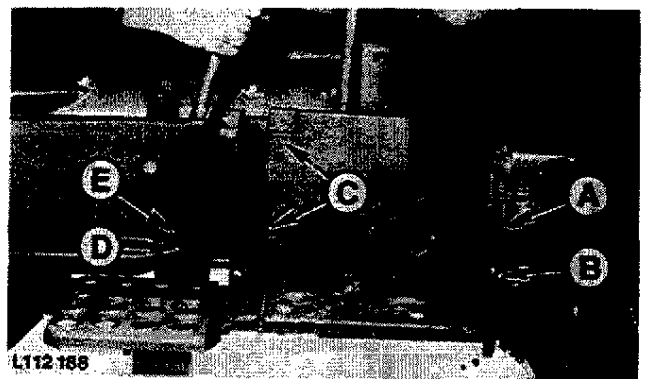
L110906-LA11025DE-080885

REMOVING LEFT-HAND BATTERY BOX (Tractors With Auxiliary Tank)

Drive spring pin (A) out of rod (B) and remove rod.

Remove the two attaching nuts (C) holding battery box to side frame.

On tractors with front PTO, remove cap screw (D).
Separate step (E) from side frame.

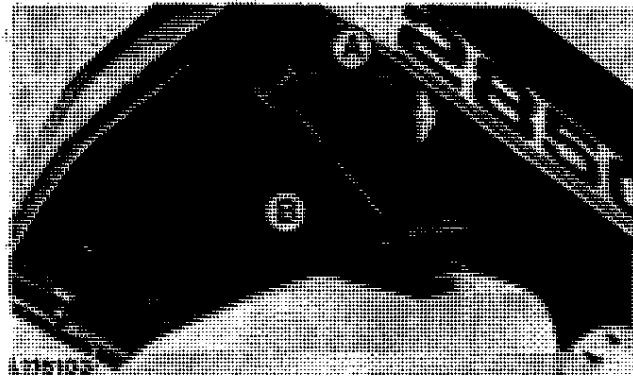


L112188-LB31025CE-010287

REMOVING ENGINE HOOD

Remove exhaust pipe and air precleaner, when equipped.
Remove radiator side plates and grille screens.

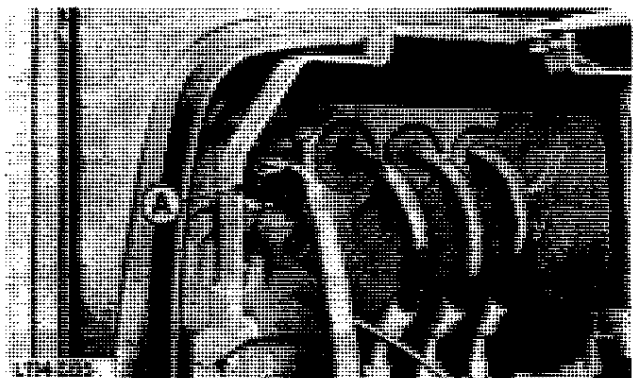
Swing hood upward from the front. Remove quick-lock pin (A) at gas pressure cylinder (B).



L116103-LB31025AE-010888

DISCONNECTING PLUG AT DASH PANEL

A—Engine wiring harness



L114685-LB31025AE-010287

DISCONNECTING STEERING SYSTEM HYDRAULIC LINES

Remove unions (A) of steering system hydraulic lines.

NOTE: Seal open ends with plastic plugs.

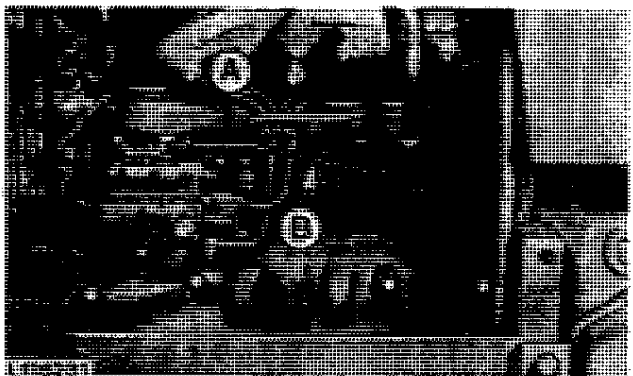


L116228-LB31025BE-010287

DISCONNECTING ENGINE SHUT-OFF CABLE/REMOVING SPEED CONTROL ROD

Disconnect engine shut-off cable (A) at fuel injection pump and push to the rear.

Disconnect speed control rod (B) at fuel injection pump lever, lift out of rear ball joint and remove.

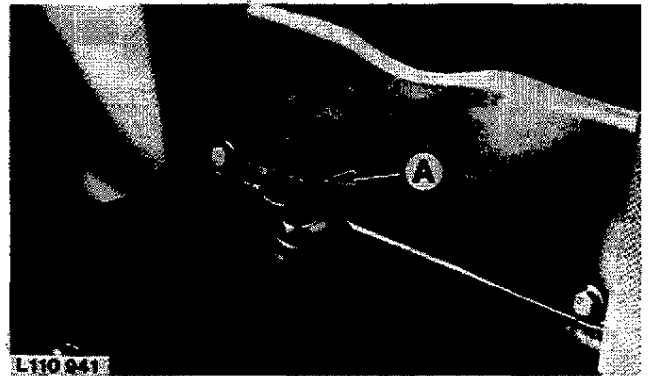


L116231-LB31025AE-010287

Tractor Separation

REMOVING RATE-OF-DROP ADJUSTING SCREW

Remove attaching screw of rate-of-drop adjusting screw (A).

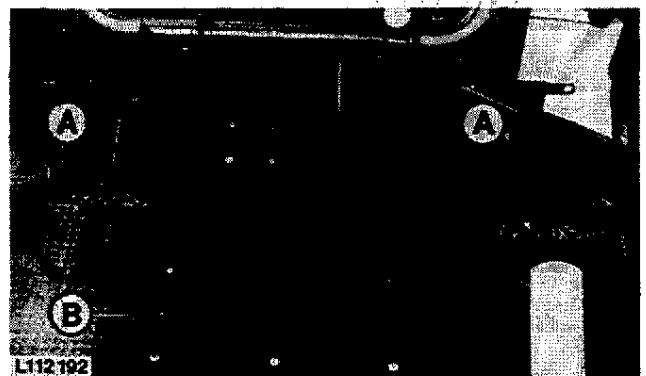


L110 941

L110941-LA11025AE-000885

REMOVING DASH PANELING AND PLATFORM PLATE

A-Paneling
B-Platform plate



L112 192

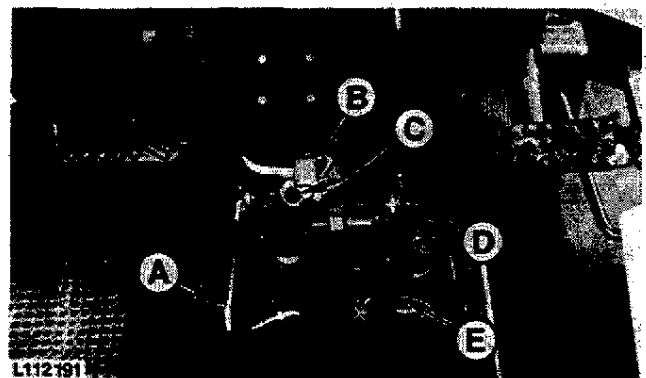
L112192-LA11025AE-151085

DISCONNECTING CONNECTIONS FROM TRANSMISSION SHIFT COVER

Unhook Hi-Lo shift unit connecting rod (A).
Remove cap screw (C) and return line connection bracket (B). Disconnect PTO connecting rod (D).
Disconnect plug (E).

NOTE: Pull up and tie together connecting rods (A and D) and return line (B) to prevent jamming when cab is reinstalled.

NOTE: On later tractor series, return line (B) is connected to return flow connector of front PTO on left-hand side of clutch housing.



L112 191

L112191-LB31025AE-010888

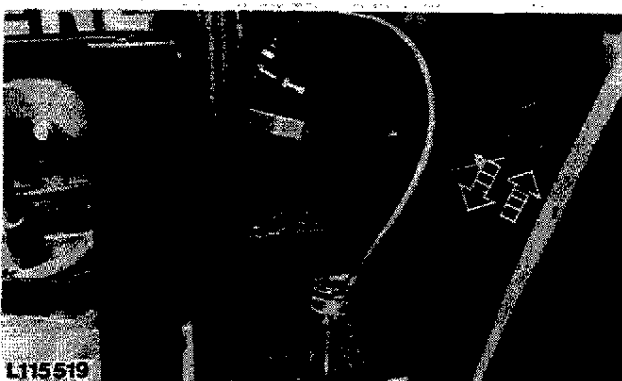
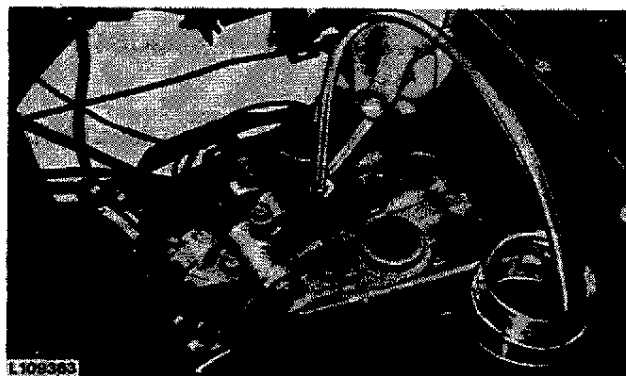
DRAINING CLUTCH OPERATING SYSTEM

NOTE: On tractors up to serial no. 603 132L, drain operating system at Hi-Lo shift unit interlock. On tractors from serial no. 603 133L, drain at bleed hose.

Back off bleed screw one turn. Drain system by operating clutch pedal.



CAUTION: When removing hose from bleed screw, make sure no brake fluid contacts tractor parts because fluid is aggressive and damages paint.



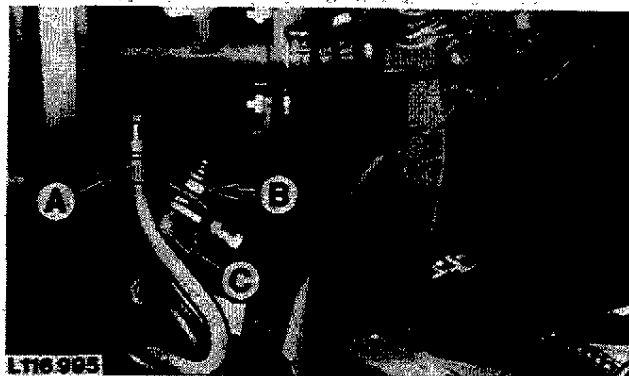
L109363, L115519-LB31025AE-010287

DISCONNECTING CLUTCH OPERATING SYSTEM LINES

Disconnect pressure line (A) at master cylinder.

NOTE: Seal open ends with plastic plugs.

Remove hex. nut (B) of bleed line (C).



L116995-LB31025AE-010287

LOWERING AUXILIARY FUEL TANK (Tractors with Air Conditioning System)

Remove cover plate (C).

Remove front attaching screw (A) of fuel tank (B) and lower tank by removing rear cap screw.



L109458-LA71025AE-180385

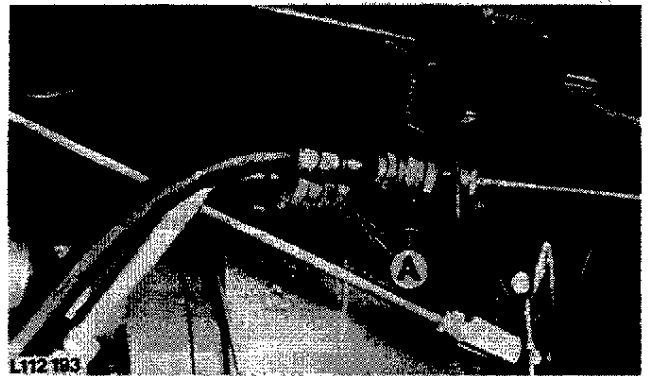
DISCONNECTING AIR CONDITIONING SYSTEM REFRIGERANT LINES (When Equipped)

Disconnect refrigerant lines by unscrewing unions (A).

NOTE: No refrigerant is lost when these couplings are disconnected.



CAUTION: The following instructions must be carefully observed when handling refrigerant R-12.



a. Do not expose eyes or skin to liquid refrigerant. Always wear safety goggles when opening refrigerant lines. Liquid refrigerant R-12 has a boiling temperature of approx. -29°C (-21°F); therefore, serious injury may result if liquid refrigerant contacts the eyes or skin. If refrigerant does come into contact with the eye, call a doctor IMMEDIATELY and:

Do not rub the eye. Splash cold water on the eye to gradually raise the temperature of the contacted area.

If liquid refrigerant comes into contact with the skin, treat the injury as though it were frozen or frostbitten.

b. Never discharge refrigerant into an area where there is exposed flame. Heavy concentrations of refrigerant R-12 contacting an open flame will produce a poisonous gas.

c. Do not weld or steam clean on an air conditioning system. Excessive pressure could be built up within the system.

d. Before loosening a refrigerant fitting, cover the connection with a cloth.

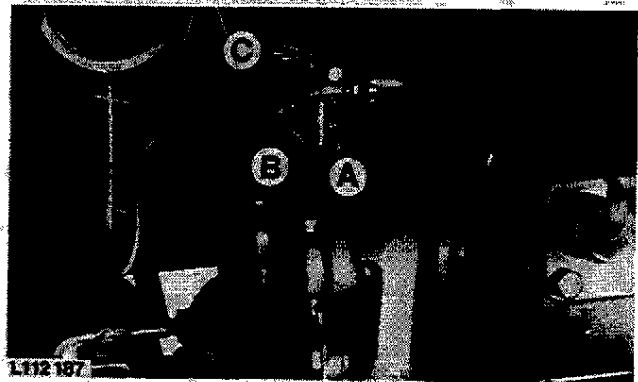
IMPORTANT: Keep ends of couplers clean to prevent possible contamination or moisture entering the air conditioning system.

L112193-LA11025AE-001085

DISCONNECTING BRAKE HOSE AND DIFFERENTIAL LOCK ROD

Disconnect brake hose (A) and seal open ends with plastic plugs.

Remove spring clip (C) and unhook rod (B) from top bore.

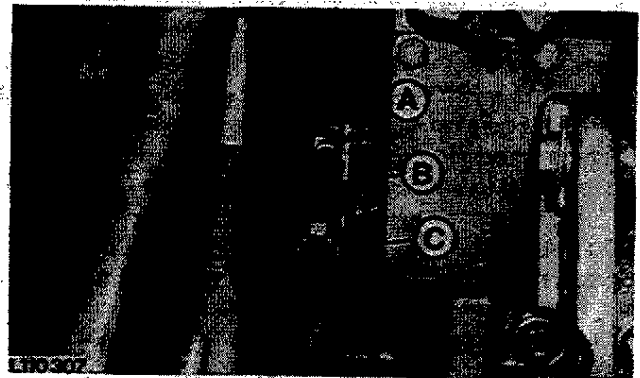


L112187-LA11025AE-151085

REMOVING HANDBRAKE ROD

Loosen hex. nut (A) on rear yoke, then remove safety strap (C) and unscrew handbrake rod (B).

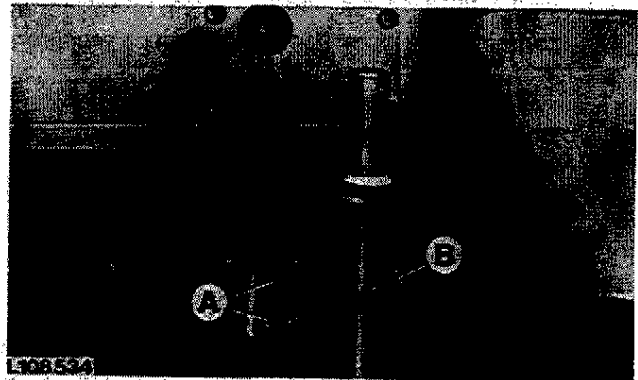
NOTE: Before unscrewing the handbrake rod, measure assembly length and note for reinstallation.



L110307-LA71025AE-000385

REMOVING ROCKSHAFT LIFT LINK ADJUSTER

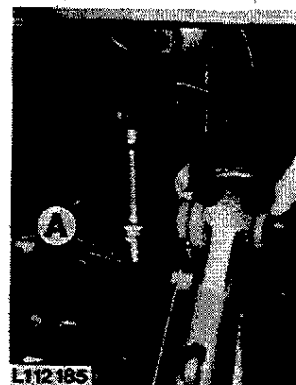
Remove cap screws (A) and lift off adjuster (B).



L108534-LA71025AE-000385

REMOVING REAR CAB MOUNTING HEX. NUTS

A-Hex nuts

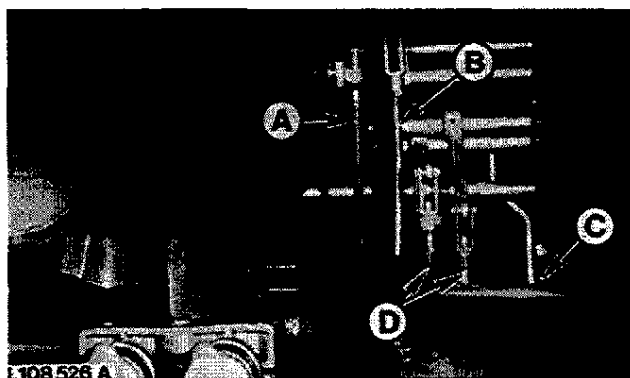


L112185,L112186-LA11025AE-151085

REMOVING CONNECTING RODS

A-Rockshaft control lever connecting rod
B-Rockshaft selector lever connecting rod
C-PTO speed control lever connecting rod
D-Selective control valve connecting rods

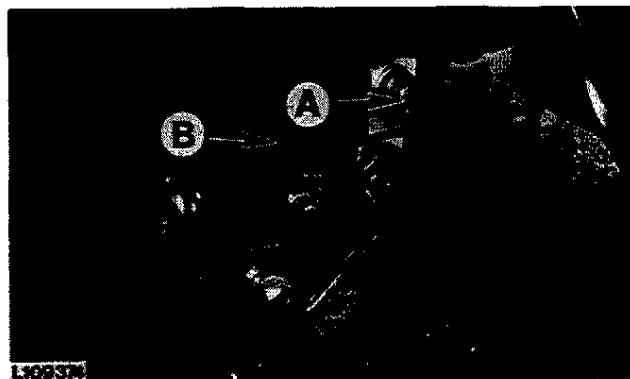
IMPORTANT: Always remove rockshaft connecting rods completely to avoid rods being bent when reinstalling the SG2 cab.



L108526A-LB61025AE-151085

REMOVING RETAINING BRACKET FROM ROCKSHAFT HOUSING

A-Cap screws
B-Retaining bracket



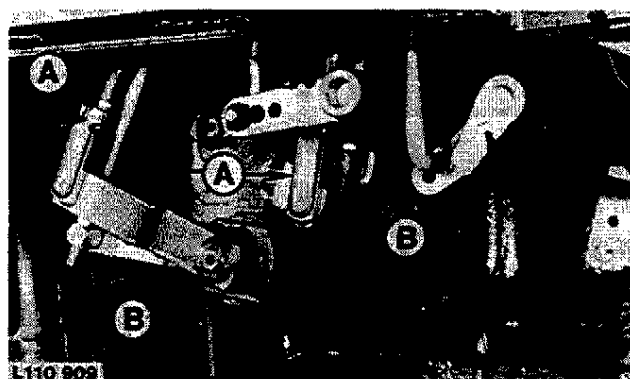
L109374-LA71025AE-180385

DISCONNECTING SHIFT RODS

Remove safety straps (A) and snap rings (B).

Remove rear shift rods from bores and tie together with front shift rods.

When equipped, remove plastic strap securing heater hoses to return line of selective control valve.

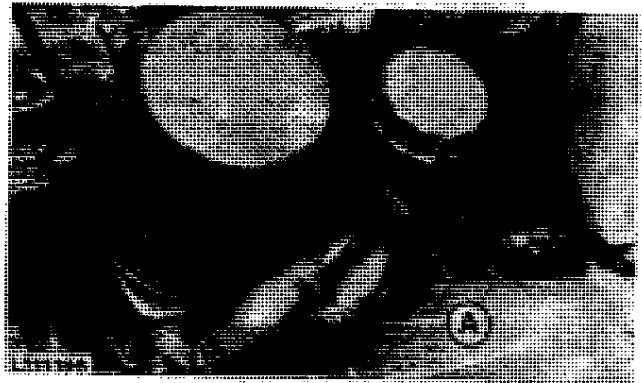


L110909-LA11025AE-060885

DRAINING COOLANT

Open drain tap (A).
Drain coolant into a suitable container.
Turn cab heater control fully to right.

Capacity: 15 liters (4.0 U.S. gal.)



L111196-LB31025AE-010888

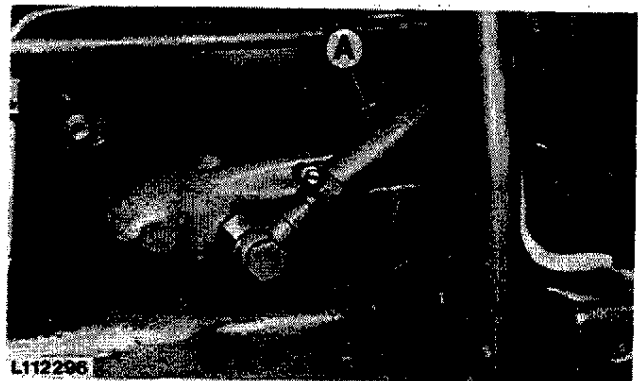
DISCONNECTING HEATER HOSES

Disconnect right-hand heater hose (A) at connection to heater pipe.



L111195-LA11025AE-151085

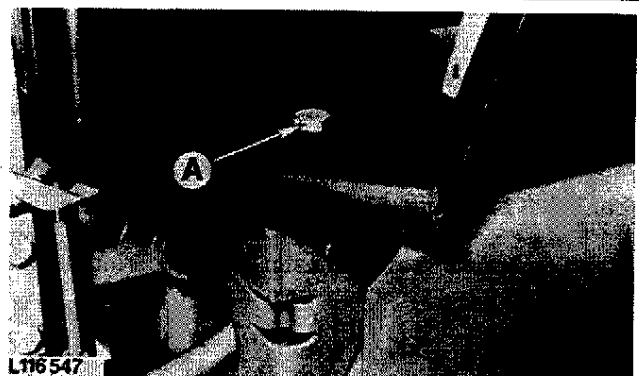
Disconnect left-hand heater hose (A) at connection to heater pipe.



L112296-LA11025AE-001085

DISCONNECTING FRONT LEFT-HAND CAB MOUNTING

A—Cap screw

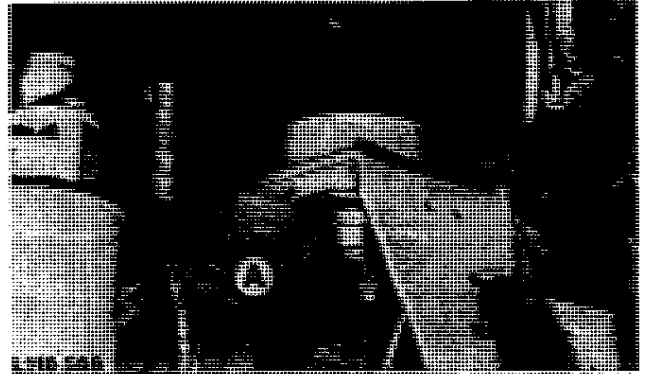


L116547-LB31025AE-010287

Tractor Separation

DISCONNECTING FRONT RIGHT-HAND CAB MOUNTING

Remove cap screw (A).



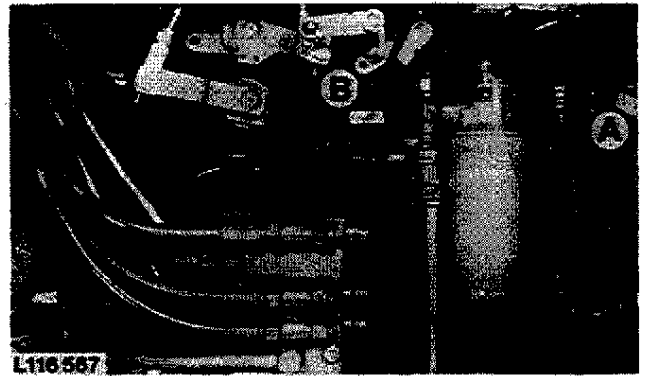
L116568-LB31025AE-010287

DISCONNECTING BRAKE LINE

Disconnect brake line (A) at cab platform.

When equipped, disconnect steering return line (B) at filter.

Seal open ends with plastic plugs.

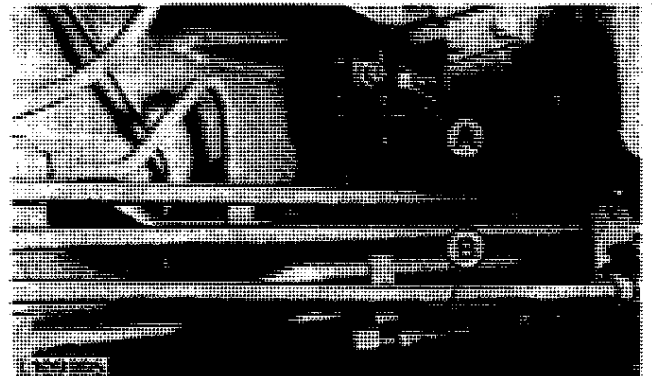


L116567-LB31025AE-010287

DISCONNECTING BRAKE LINE (Tractors with U.J. Drive Shaft Brake)

Remove bracket (A) of pressure lines. Disconnect brake line (B) and tie up.

NOTE: Seal open ends with plastic plugs.



L109995-LB31025AE-010287

RAISING SG2 CAB

NOTE: The following SG2 cab removal procedure is described using a lifting bar on cab roof as well as self-manufactured lifting device on rear cab panel.

TERLEZ-LA71025ME-000385

REMOVAL WITH LIFTING BAR

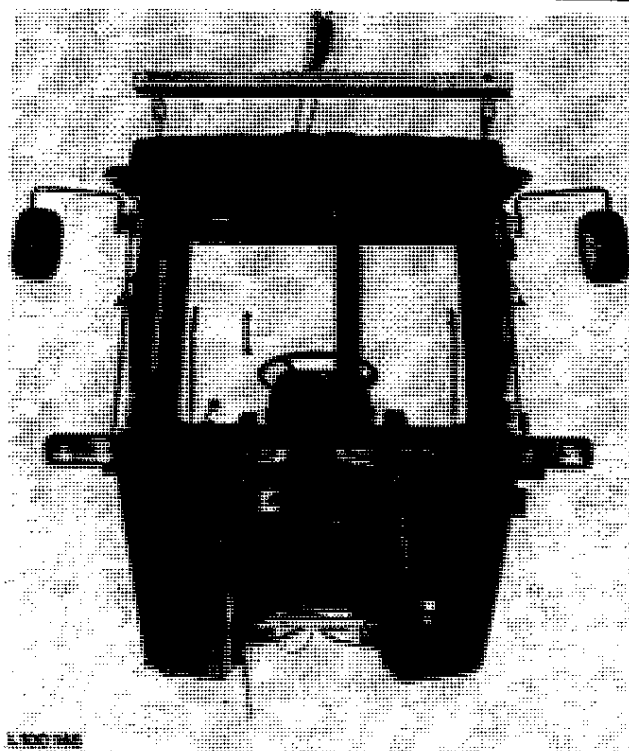
To install the two lifting eyes JT05505, remove both cap screws on top of cab.

Attach SG2 cab to a suitable hoist and raise until fully clear of tractor.

NOTE: Width of lifting device should be the same as between both cap screws/lifting eyes on cab roof.

With a stationary hoist, roll tractor from under cab to the front.

Lower SG2 cab onto trestles. Support cab safely!



L100148-LA61025AE-100885

Tractor Separation

REMOVAL WITH LIFTING DEVICE

Use a suitable tractor for lifting. If necessary, remove the two sway blocks.

NOTE: Manufacture a lifting device and a steel shaft as shown under "SPECIAL TOOLS (Self-Manufacture)".

TEILEZ-LB31025GE-010287

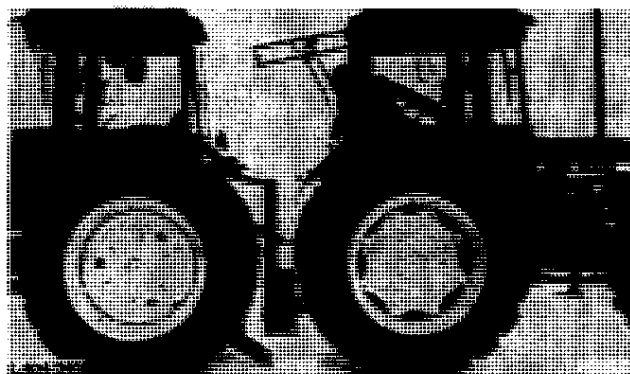
ATTACHING LIFTING DEVICE TO LIFTING TRACTOR

Using a steel shaft (A), attach lifting device to draft links.

Attach center link with existing pin and spring pins to center bracket of lifting device.

Disconnect both draft links on tractor from which SG2 cab is to be removed and allow to hang down.

Carefully approach SG2 cab with lifting tractor.



L109375, L104345-LA71025AE-130385

ATTACHING LIFTING DEVICE TO REAR PANEL

Using four cap screws (A) and washers, attach lifting device to rear panel of cab.

Slowly raise cab until tractor and cab are completely separated.

Carefully lower cab onto trestles.

NOTE: Center link (B) must be horizontal with draft links completely lowered.



L109373-LA71025AE-000385

INSTALLING SG2 CAB

Install PTO shift connecting rod (A) and refrigerant lines (B) (when equipped) as shown.

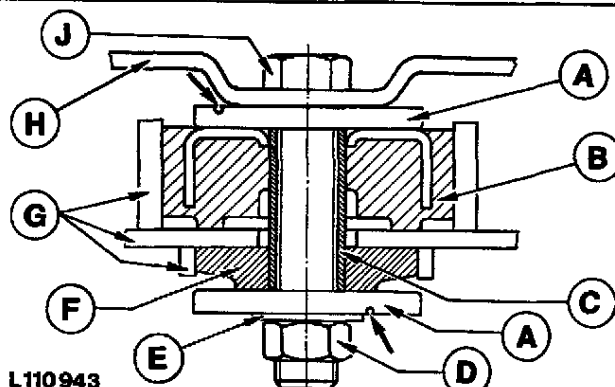


L116586-LB31025AE-010287

PREASSEMBLING FRONT CAB MOUNTINGS

A-Washer
B-Rubber bearing pad
C-Bushing
D-Hex. nut
E-Washer

F-Rubber washer
G-Mounting bracket
H-Cab frame
J-Cap screw



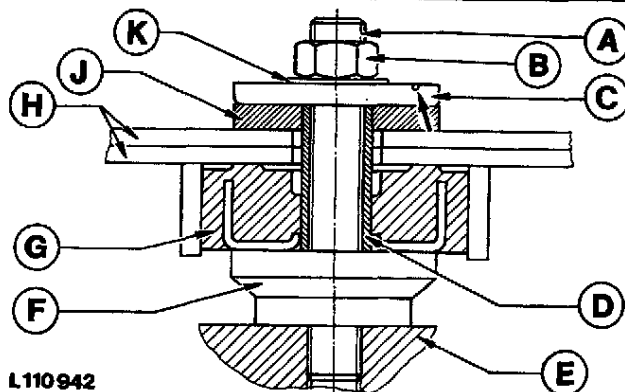
L110943

L110943-LA11025AE-120885

PREASSEMBLING REAR CAB MOUNTINGS

A-Stud
B-Hex. nut
C-Washer
D-Bushing
E-Final drive housing

F-Washer
G-Rubber bearing pad
H-Cab frame
J-Rubber washer
K-Washer



L110942

L110942-LA11025AE-120885

IMPORTANT NOTES

Marked (see arrows) sides of washers (A and C) must face away from rubber bearing pad or rubber washer.

Lubricate rubber bearing pads and rubber washers of cab bearing with commercially available sliding agent.

Before inserting front cap screw (J), ensure that hole pattern of cab mounting brackets is aligned. If necessary, adjust mounting bracket (G).

TEILEZ-LB31025HE-010287

LOWERING CAB ONTO MOUNTINGS

NOTE: Carefully lower cab. Make sure all rods and hoses are positioned correctly.

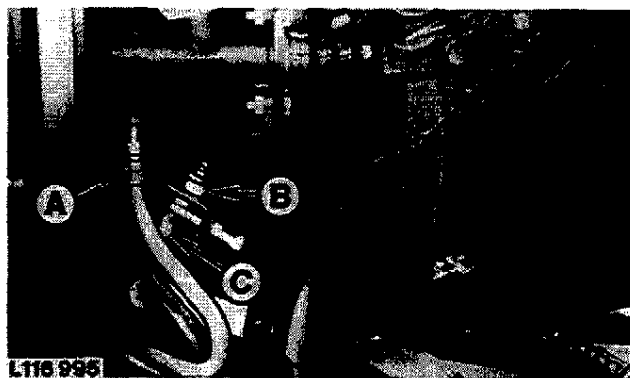
Install remaining parts of front and rear cab mountings and tighten hex. nuts finger-tight only at this stage.

TEILEZ-LA71025PE-000385

CONNECTING CLUTCH OPERATING SYSTEM LINES

Fill and bleed clutch operating system as described in Section 50, Group 10.

A—Pressure line
B—Hex. nut
C—Bleed line

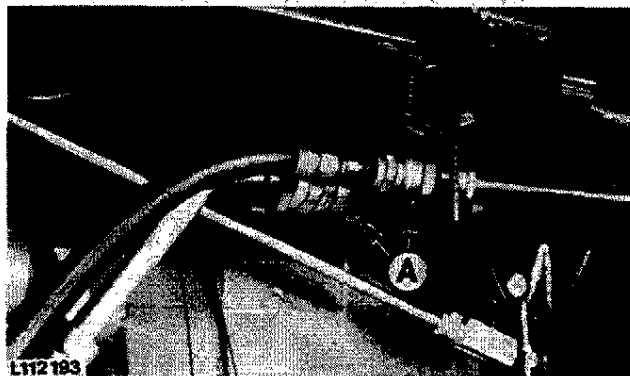


L116995-LB31025BE-010287

CONNECTING REFRIGERANT LINES (When Equipped)

CAUTION: The safety precautions described under "DISCONNECTING AIR CONDITIONING SYSTEM REFRIGERANT LINES" should be carefully observed whenever handling refrigerant R-12.

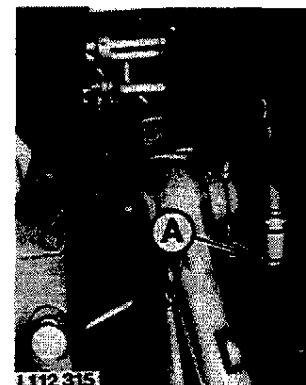
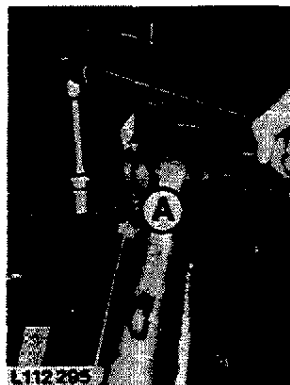
Apply refrigerator oil to line ends (A) directly before reconnecting the lines.



L112193-LB31025AE-010287

TIGHTENING REAR CAB MOUNTINGS

Tighten hex. nuts (A) to 200 Nm (145 ft-lb).

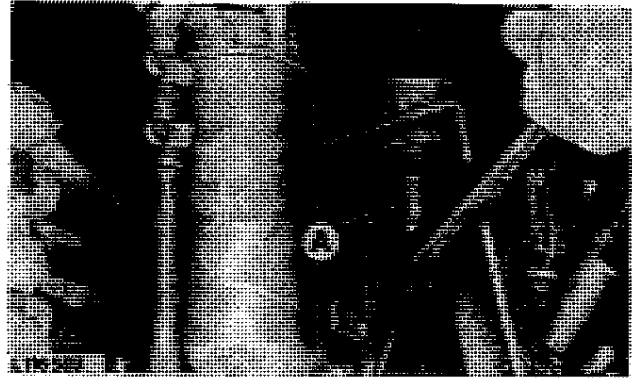


L112295,L112315-LA11025AE-001085

TIGHTENING FRONT CAB MOUNTINGS

Tighten both cap screws to 200 Nm (145 ft-lb).

A-Hex. nut



L118568-LB31025BE-010287

FINAL ASSEMBLY

Complete assembly, reversing removal procedure.

Add coolant, open heater control and run engine. Top up with coolant to marking plate in radiator or to mark "MIN" in expansion tank.

Bleed brakes as described in Section 60, Group 25.

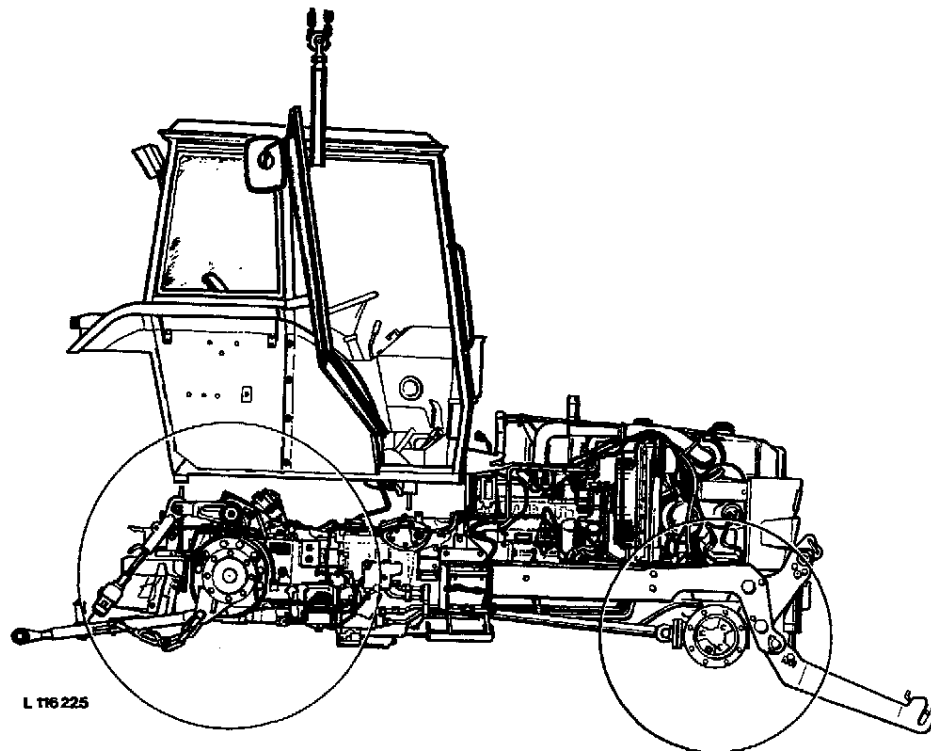
Check rockshaft functions and adjust if necessary.
See Section 70, Group 20.

Check all functions and adjust, when necessary.

IMPORTANT: Connect ground straps to negative poles of batteries.

TEILEZ-LB31025DE-010888

REMOVING MC1 CAB



L116225-LB31025AE-010287

DISCONNECTING BATTERY GROUND STRAPS

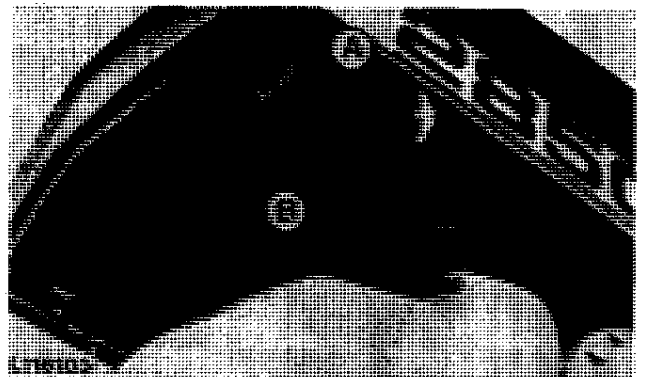


L116975-LB31025AE-010287

REMOVING ENGINE HOOD

Remove exhaust pipe and air precleaner, when equipped. Remove radiator side plates and grille screens.

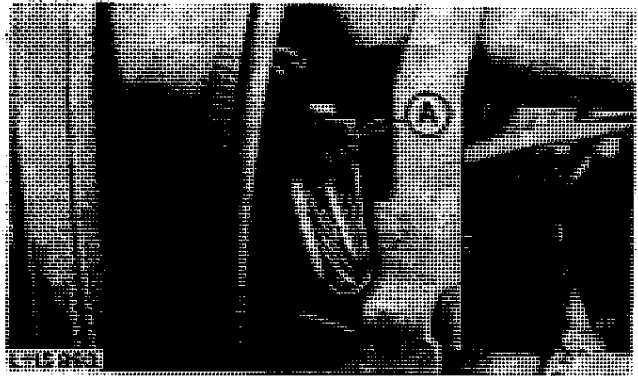
Swing hood upward from the front. Remove quick-lock pin (A) at gas pressure cylinder (B).



L116103-LB31025AE-010888

DISCONNECTING ENGINE WIRING HARNESS

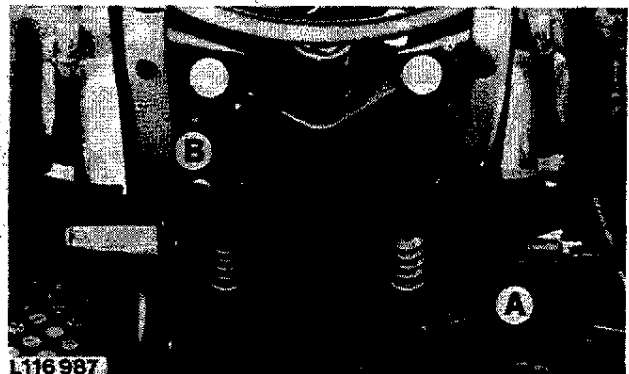
A—Engine wiring harness



L115993-LB31025BE-010287

REMOVING PLATFORM PLATE

Remove platform plate (A) together with steering column cover (B).

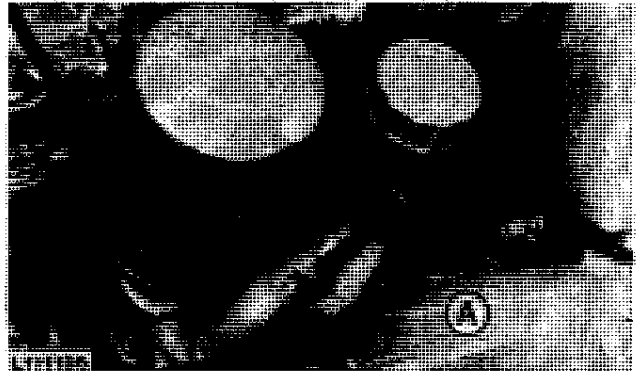


L116987-LB31025BE-010287

DRAINING COOLANT (Cabs With Heater)

Open drain tap (A).
Collect coolant in a suitable container.
Open fully heater control.

Capacity: 15.0 liters (4.0 U.S. gal.)

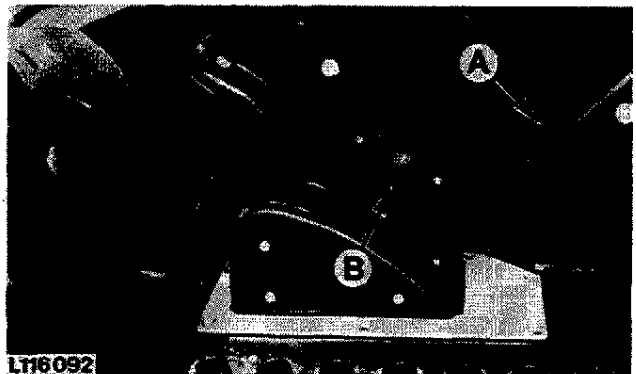


L111196-LB31025BE-010888

REMOVING COVER PLATE

Remove cover plate (A).

Loosen rubber boot (B) by removing attaching screws.



L116092-LB31025BE-010287

DISCONNECTING TRANSMISSION WIRING HARNESS

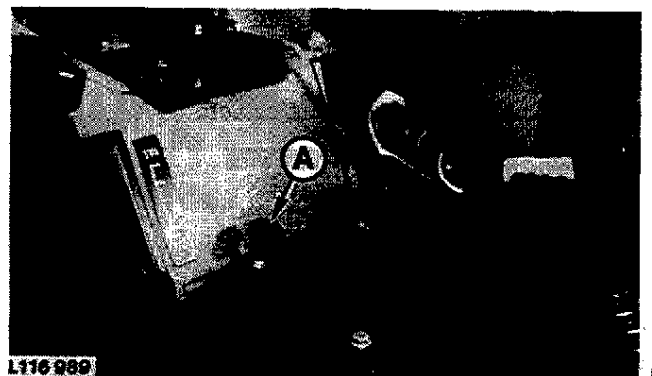
A-Transmission wiring harness



L116066-LB30125BE-010287

REMOVING RATE-OF-DROP ADJUSTING SCREW

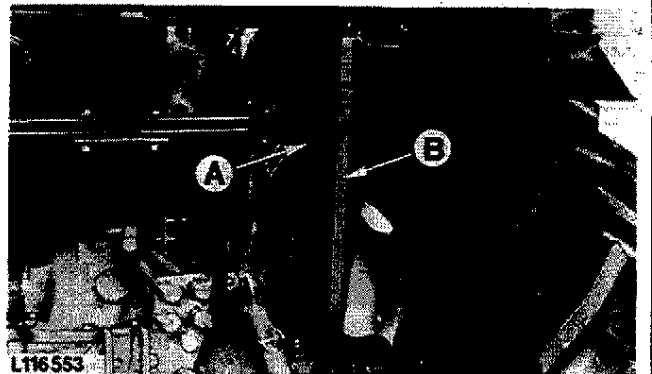
Remove attaching screw of rate-of-drop adjusting screw (A).



L116989-LB31025BE-010287

REMOVING ROCKSHAFT LIFT LINK ADJUSTER

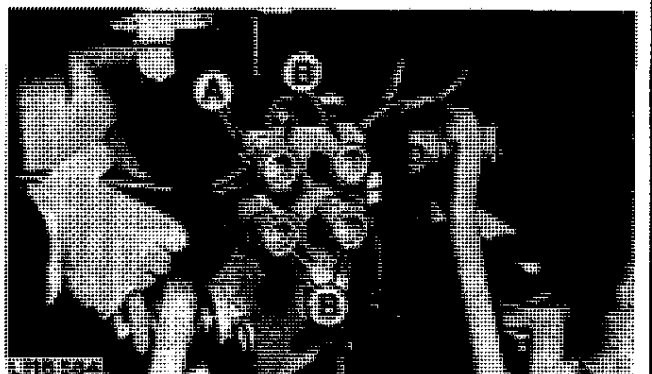
Remove cap screws (A) and lift off adjuster (B).



L116553-LB31025BE-010287

REMOVING QUICK COUPLERS (When Equipped)

Remove snap rings (A) and lift quick coupler (B) out of mounting plate.



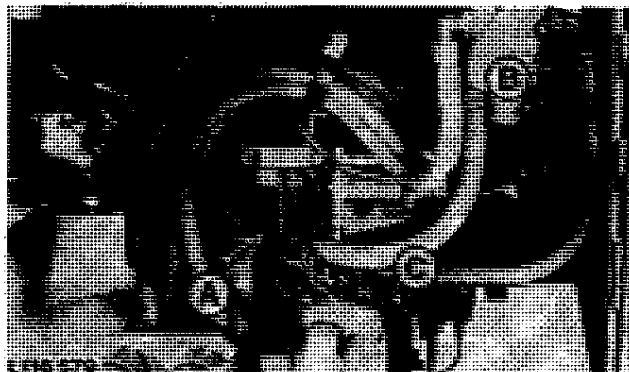
L116584-LB31025BE-010287

DISCONNECTING HYDRAULIC LINES

Disconnect return line (A) at rockshaft housing.

Disconnect pressure line (B) at elbow fitting of selective control valves.

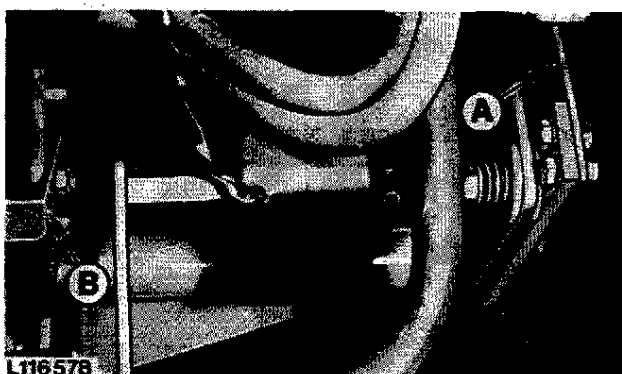
Disconnect PTO connecting rod (C), when equipped.



L116579-LB31025BE-010287

REMOVING ROCKSHAFT CONTROL LEVER

Remove control lever (A) and selector lever (B).

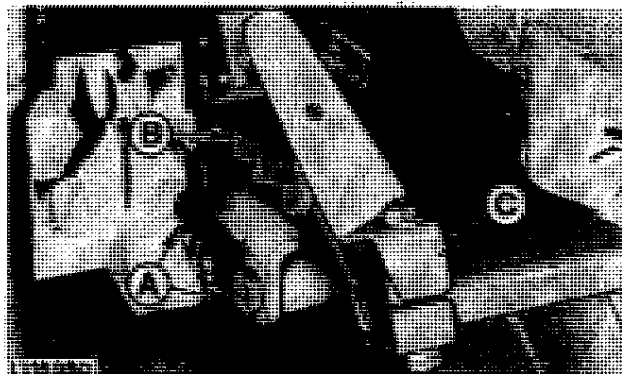


L116578-LB31025BE-010287

DISCONNECTING HANDBRAKE LEVER

Remove cap screws (A) of quadrant (B) from final drive housing.

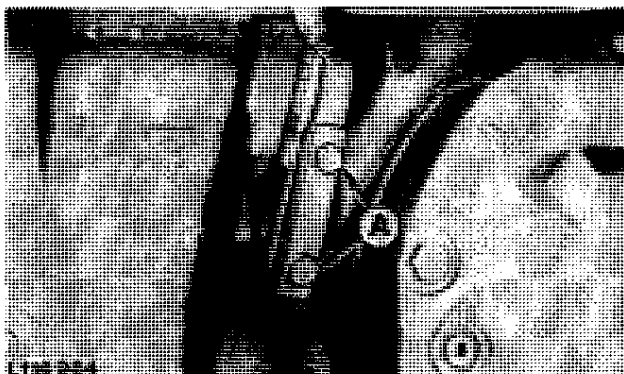
Loosen clamping bolt and pull handbrake lever (C) from shaft.



L116980-LB31025CE-010287

REMOVING DIFFERENTIAL LOCK LEVER

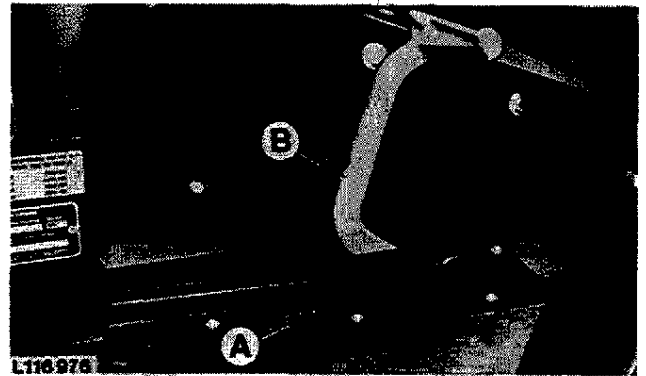
Remove cap screws (A).



L116984-LB31025BE-010287

REMOVING CLUTCH PEDAL SURROUND

A—Pedal surround
B—Clutch pedal

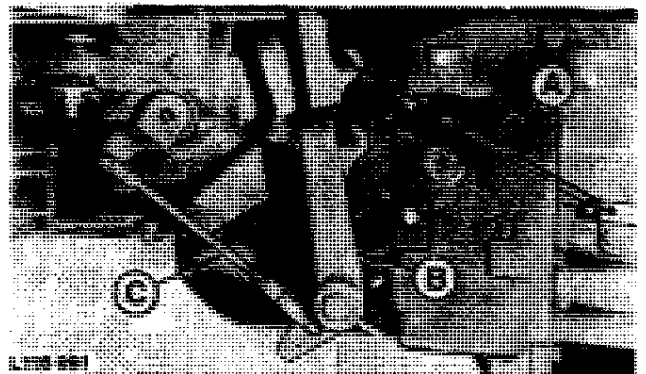


L116976-LB31025AE-010287

REMOVING CLUTCH PEDAL

Unhook clutch return spring (A).

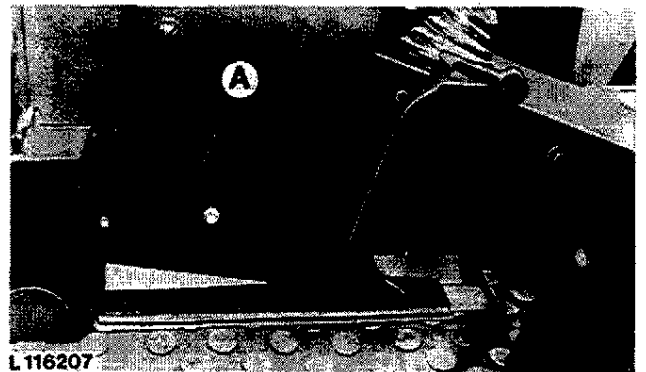
Remove clutch pedal (B) together with link rod (C).



L116991-LB31025AE-010287

REMOVING COVER PLATE

A—Cover plate

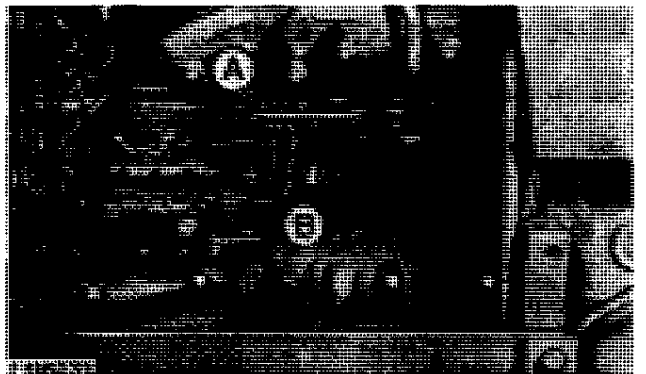


L116207-LB31025BE-010287

DISCONNECTING ENGINE SHUT-OFF CABLE/REMOVING SPEED CONTROL ROD

Disconnect engine shut-off cable (A) at fuel injection pump and push to the rear.

Disconnect speed control rod (B) at fuel injection pump lever, lift out of rear ball joint and remove.

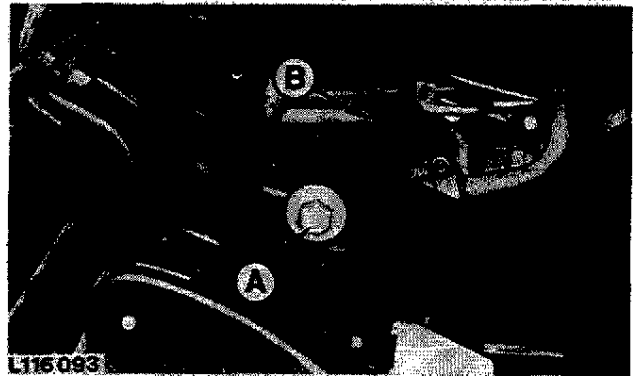


L116231-LB31025AE-010287

REMOVING THROTTLE PEDAL

Remove cap screw (A).

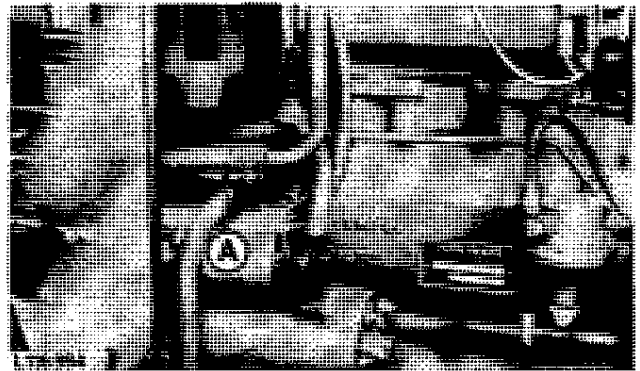
Remove throttle pedal (B).



L116093-LB31025BE-010287

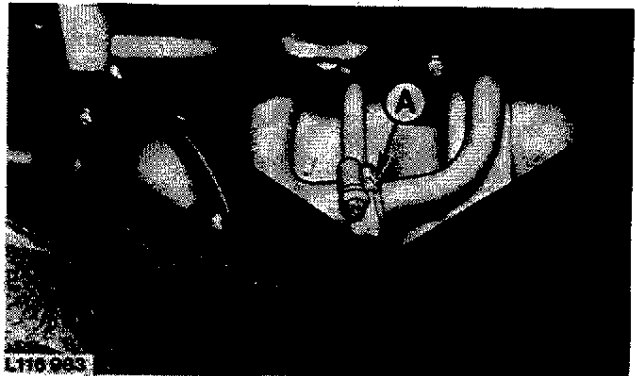
DISCONNECTING HEATER HOSES (When Equipped)

Disconnect heater hose (A) at connection to heater pipe.



L116994-LB31025AE-010287

Disconnect heater hose (A) at connection to heater pipe.



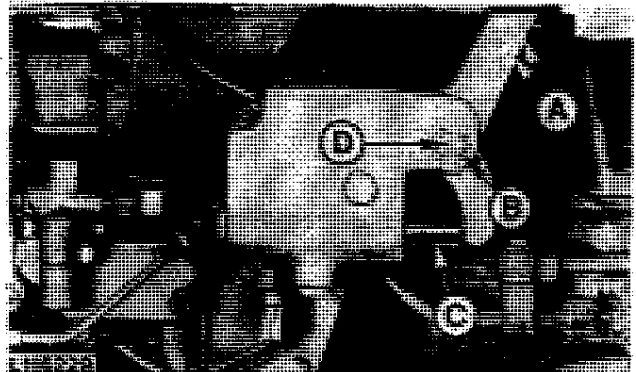
L116993-LB31025AE-010287

REMOVING BRAKE PEDALS

IMPORTANT: Remove brake pedal shaft carefully so that brake piston springs are relieved slowly. Sudden expulsion of the brake pistons under spring tension can cause damage to the valves.

A—Brake pedal
B—Snap ring

C—Brake piston
D—Pedal shaft



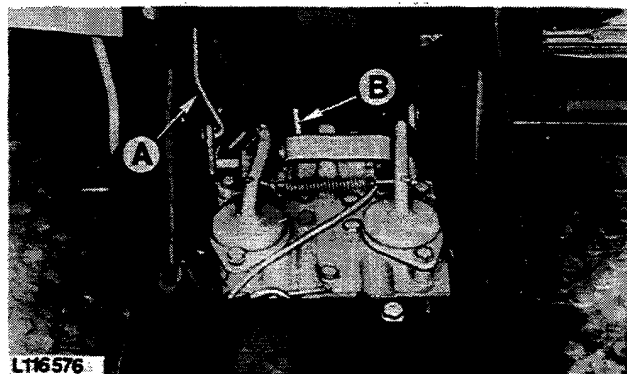
L116229-LB31025AE-010287

DISCONNECTING PTO AND HI-LO SHIFT UNIT LINKAGE

When equipped, disconnect connecting rod (A) of Hi-Lo shift unit at linkage.

Disconnect PTO connecting rod (B).

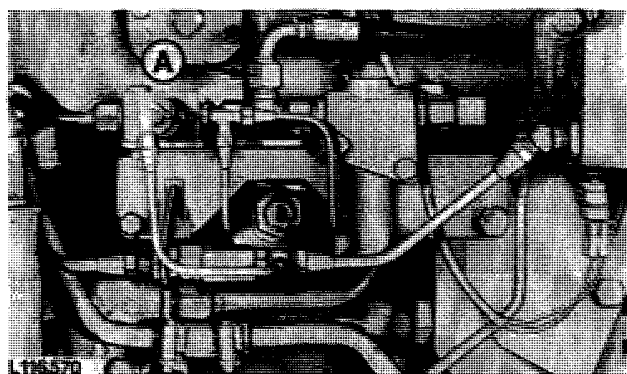
NOTE: Tie up both connecting rods.



L116576-LB31025AE-010287

DISCONNECTING PRESSURE LINE (When Equipped)

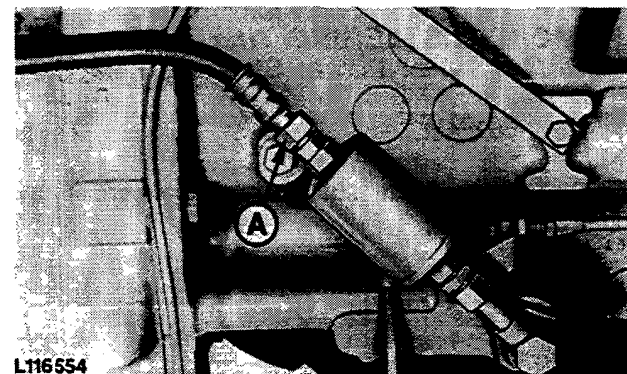
Disconnect pressure line (A) of steering system.



L116570-LB31025AE-010287

REMOVING SUCTION LINE (When Equipped)

Remove suction line (A) at filter.

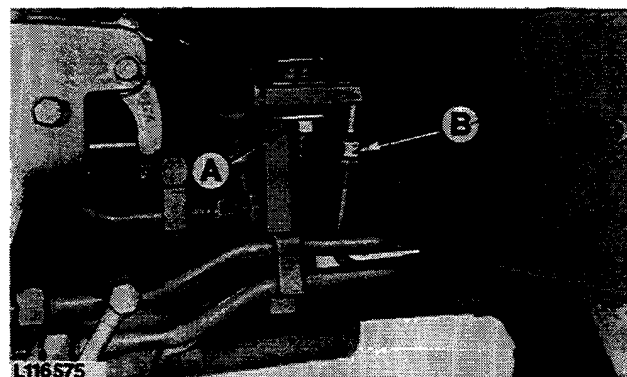


L116554-LB31025AE-010287

DISCONNECTING FRONT RIGHT-HAND CAB MOUNTING

Remove hex. nut (A) of front cab mounting.

Disconnect pressure line (B) to steering cylinder, when equipped.



L116575-LB31025AE-010287

DISCONNECTING FRONT LEFT-HAND CAB MOUNTING

Remove hex. nut (A) of front cab mounting.

Disconnect pressure line (B) to steering cylinder, when equipped.



L116574-LB31025AE-010287

REMOVING REAR CAB MOUNTINGS

Remove both hex. nuts (A).

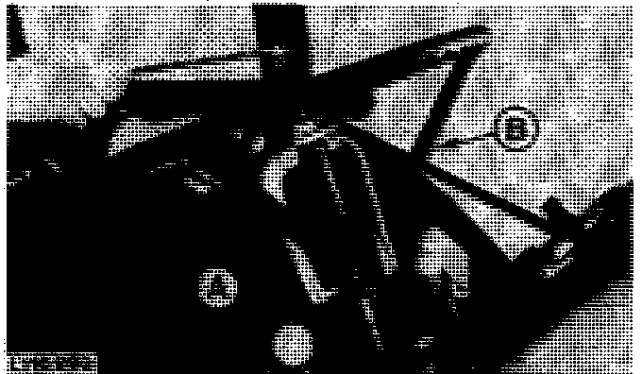


L116230-LB31025AE-010287

REMOVING STEERING WHEEL (Tractors With Manual or Power Steering)

Remove hex. nut.

Remove steering wheel (B) using a commercially available puller (A).



L116990-LB31025AE-010287

RAISING MC1 CAB

NOTE: The following MC1 cab removal procedure is described using a self-manufactured holding device on upper cab frame as well as self-manufactured lifting device on rear cab panel.

TEILEZ-LB31025JE-010287

REMOVAL WITH HOLDING DEVICE

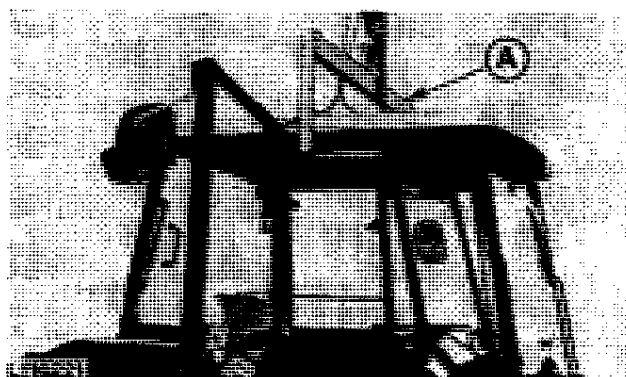
NOTE: Manufacture a holding device as shown under "SPECIAL TOOLS (Self-Manufacture)".

Attach holding device (A) to a suitable hoist and position over MC1 cab.

Secure the two arms of the holding device around the attaching bolts of the upper longitudinal member, then raise cab until fully clear of tractor.

With a stationary hoist, roll tractor from under cab to the front.

Lower MC1 cab onto trestles. Support cab SAFELY!



L116221, L116581-LB31025AE-010287

REMOVAL WITH LIFTING DEVICE

Use a suitable tractor for lifting. If necessary, remove the two sway blocks.

NOTE: Manufacture a lifting device and a steel shaft as shown under "SPECIAL TOOLS (Self-Manufacture)".

TEILEZ-LB31025GE-010287

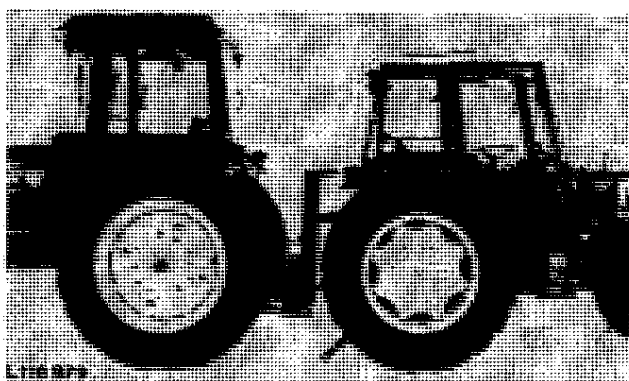
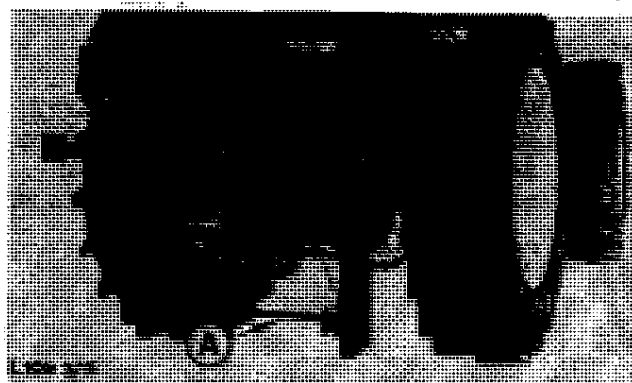
ATTACHING LIFTING DEVICE TO LIFTING TRACTOR

Using a steel shaft (A), attach lifting device to draft links.

Attach center link to existing pin and spring pins to center bracket of lifting device.

Disconnect both draft links on tractor from which cab is to be removed and allow to hang down.

Carefully approach MC1 cab with lifting tractor.



L109375, L116979-LB31025AE-010287

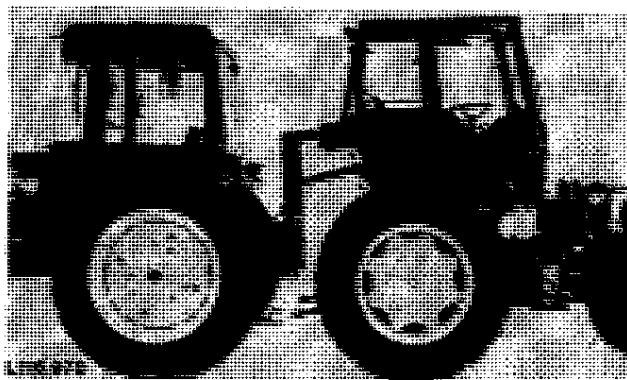
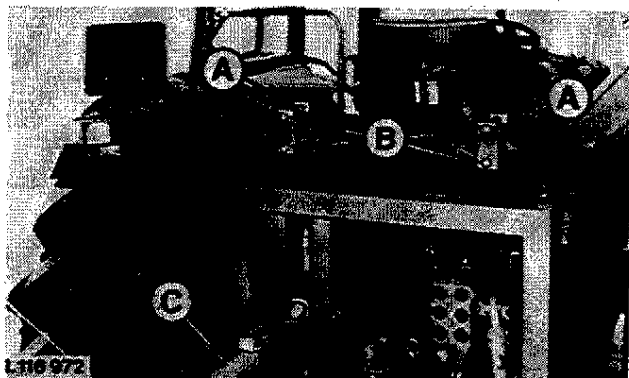
ATTACHING LIFTING DEVICE TO CROSSBAR

NOTE: Manufacture four holding plates (A) as shown under "SPECIAL TOOLS (Self-Manufacture)".

Using four cap screws (B) and hex. nuts, assemble the holding plates, crossbar and lifting device.

NOTE: Center link (C) must be horizontal when draft links are completely lowered.

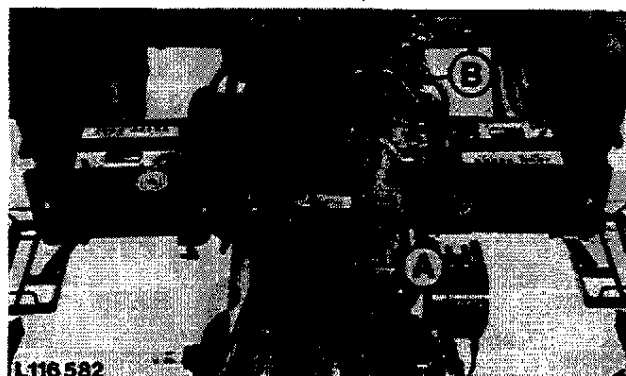
Slowly raise MC1 cab until fully clear of tractor.



L116972, L116978-LB31025AE-010287

INSTALLING MC1 CAB

Install transmission wiring harness (A) and heater pipe (B) (when equipped) as shown.



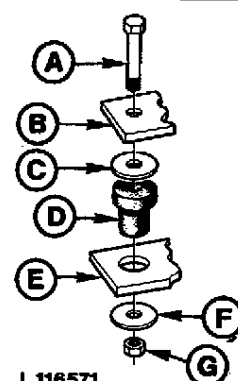
L116582

L116582-LB31025AE-010287

PREASSEMBLING CAB MOUNTINGS

A—Cap screw
B—Cab frame
C—Washer
D—Rubber bearing pad

E—Mounting bracket
F—Washer
G—Hex. nut



L 116571

L116571-LB31025AE-010287

LOWERING CAB ONTO MOUNTINGS

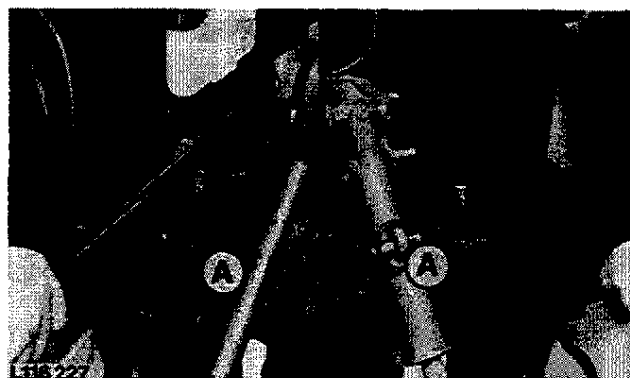
NOTE: Carefully lower cab. Make sure all rods and hoses are positioned correctly.

Install remaining parts of front and rear cab mountings and tighten hex. nuts finger-tight only at this stage.

TEILEZ-LA71025PE-000385

TIGHTENING REAR CAB MOUNTINGS

Tighten cap screws (A) to 245 Nm (180 ft-lb).

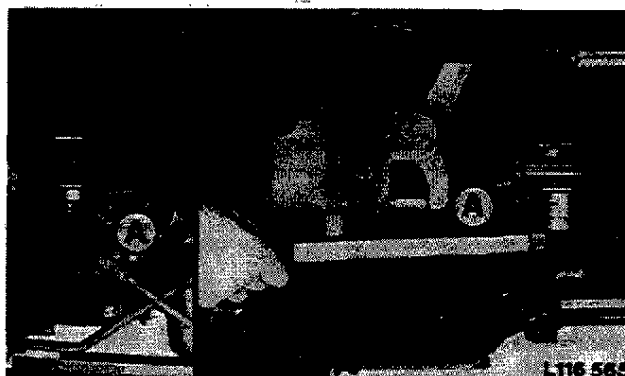


L116227

L116227-LB31025CE-010287

TIGHTENING FRONT CAB MOUNTINGS

Tighten hex. nuts (A) to 245 Nm (180 ft-lb).



L116585-LB31025CE-010287

INSTALLING STEERING WHEEL (Tractors With Manual or Power Steering)

Tighten hex. nut (A) to 70 Nm (50 ft-lb), then bend over locking tab.



L116985-LB31025AE-010287

FINAL ASSEMBLY

Complete assembly, reversing removal procedure.

On cabs with heater, fill with coolant, open heater control and run engine. Top up with coolant to marking plate in radiator or to above "MIN" mark in expansion tank.

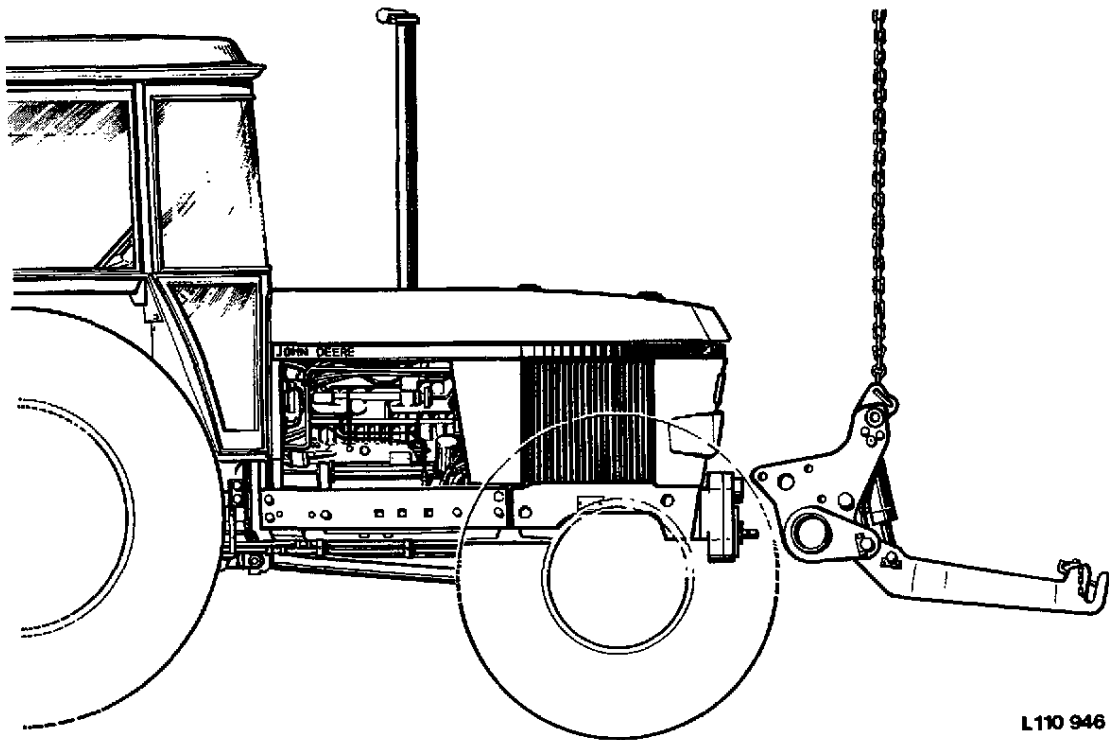
Check rockshaft functions and adjust if necessary.
See Section 70, Group 15.

Check all functions and adjust, when necessary.

IMPORTANT: Connect ground straps to negative poles of batteries.

TEILEZ-LB31025EE-010888

REMOVING FRONT HITCH



L110 946

L110946-LA11025AE-190885

DISCONNECTING BATTERY GROUND STRAPS

Remove batteries.



L110 906

L110906-LA11025AE-260885

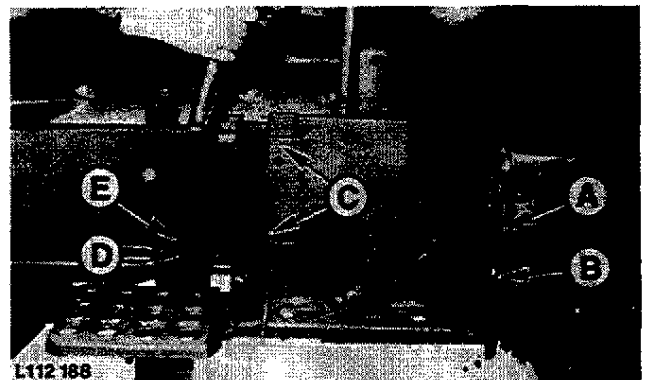
REMOVING LEFT-HAND BATTERY BOX

Drive spring pin (A) out of rod (B) and remove rod.

Remove both battery box securing hex. nuts (C) at side frame.

On tractors with front PTO, remove cap screw (D).

Disconnect step (E) at side frame.

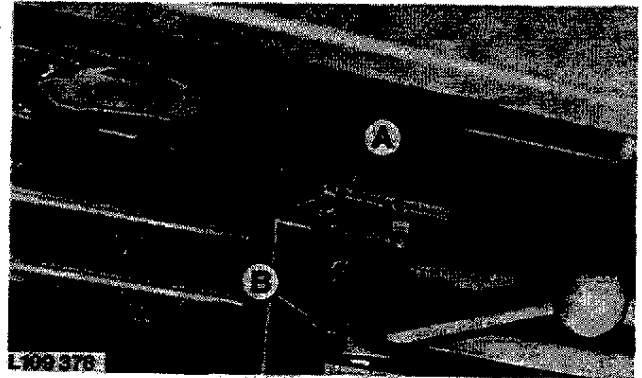


L112 188

L112188-LA11025CE-001085

DISCONNECTING RETAINING BRACKET FROM BATTERY BOX

Remove attaching nuts (A) from shut-off cock (B) retaining bracket.

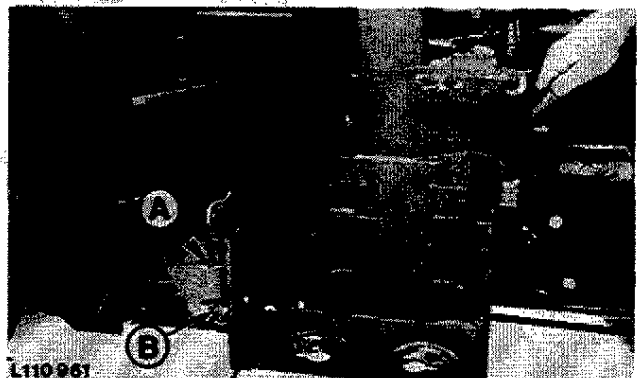


L109376-LA11025BE-151085

REMOVING RIGHT-HAND BATTERY BOX

Drive spring pin (A) out of rod (B) and remove rod.

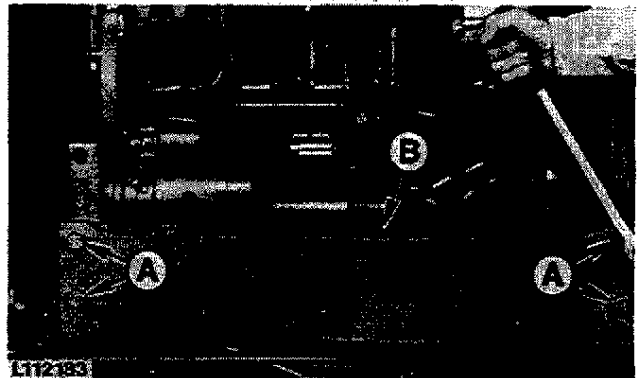
Remove both battery box securing nuts at side frame.



L110961-LA11025AE-260885

REMOVING SIDE FRAMES

Remove the four attaching screws (A) and lift out the inner side frame (B).

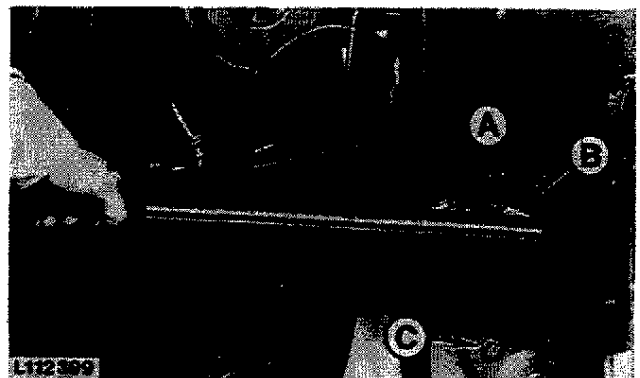


L112183-LA11025AE-051185

Loosen lock nut (A) and then remove adjusting screw (B).

Remove attaching screw (C).

Remove side frame.



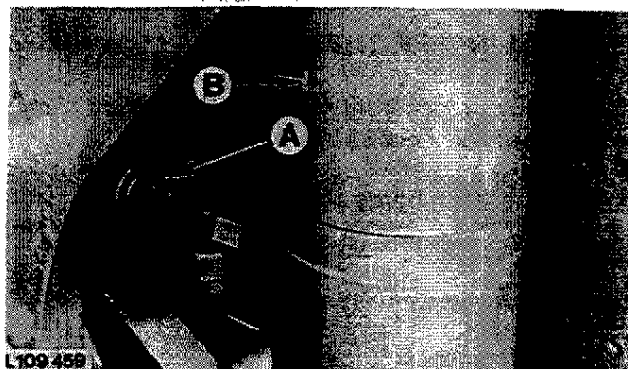
L112389-LA11025AE-001185

Tractor Separation

REMOVING PRESSURE LINE

Disconnect pressure line (A) from elbow fitting of lift cylinder (B).

IMPORTANT: Cap all hydraulic line openings with plastic plugs to prevent dirt from entering the system.



L109459-LA71025AE-260385

REMOVING FRONT PTO SHIFT LEVER

Remove connecting rod (B).

Remove cap screw (A).

Unscrew special nut (C).



L109555-LA71025AE-260385

REMOVAL OF FRONT HITCH

Attach suitable hoist to center link bracket.



L109760-LA71025AE-260385

EXTRACTING PINS

A-Pin

Pull out front hitch towards the front.

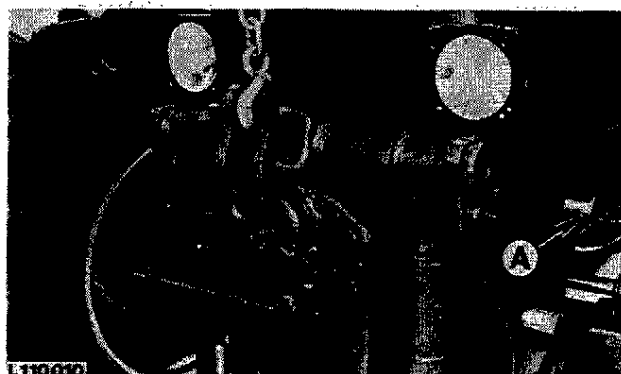


L109750-LA71025AE-260385

INSTALLING FRONT HITCH

Carefully approach front axle carrier with front hitch using a suitable hoist.

Insert pins (A) in bores of front axle carrier.



L110010-LA71025AE-260385

FITTING SIDE FRAMES

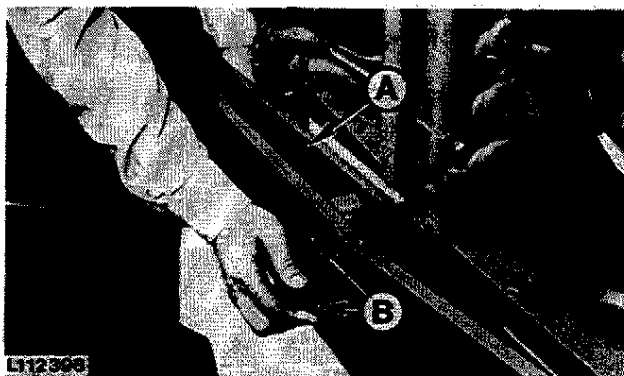
Slide side frame over both pins until positioned correctly.



L112396-LA11025AE-051185

By means of both attaching screws (B), position inner side frame (A) on front axle carrier.

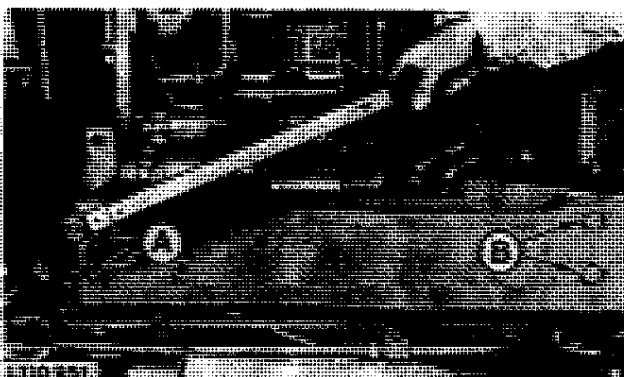
Then slide front hitch side frame into position against the inner side frame.



L112398-LA11025AE-051185

TIGHTENING ATTACHING SCREWS

Tighten the attaching cap screws (A and B) to 335 Nm (245 ft-lb).

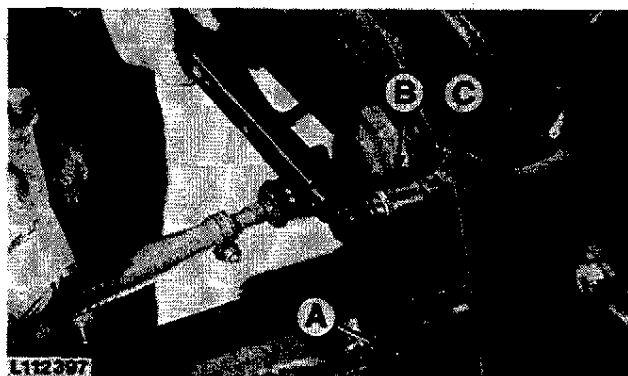


L110951-LA11025AE-051185

Tractor Separation

Tighten attaching screws (A) to 335 Nm (245 ft-lb).

Install adjusting screws (B) to 10 Nm (7 ft-lb) and then tighten hex. nuts (C) to 245 Nm (180 ft-lb).



L112397-LA11025AE-001185

INSTALLING FRONT PTO SHIFT LEVER

Attach shift lever with special nut (B).

Tighten cap screw (A) to 400 Nm (300 ft-lb).

Hook in connecting rod.



L109762-LA71025AE-000385

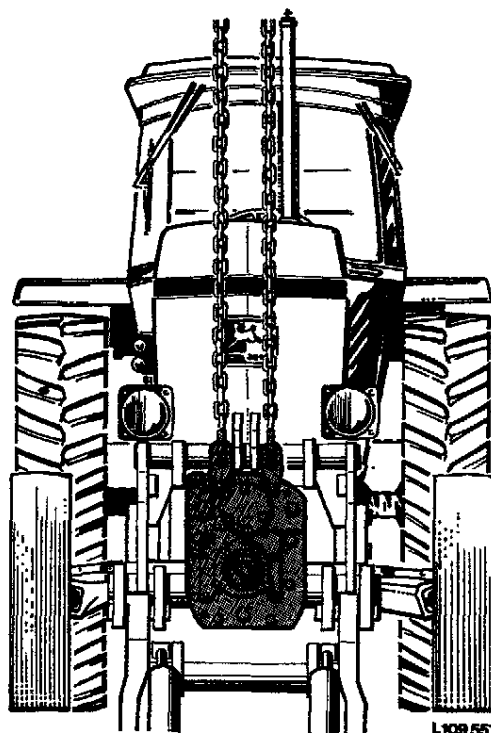
FINAL ASSEMBLY

Complete assembly, reversing removal procedure.

**IMPORTANT: Connect ground straps to negative poles
of batteries.**

TEILEZ-LA71025RE-270385

REMOVING FRONT PTO



L109 551

L109551-LA71025AE-260385

REMOVING FRONT PTO SHIFT LEVER

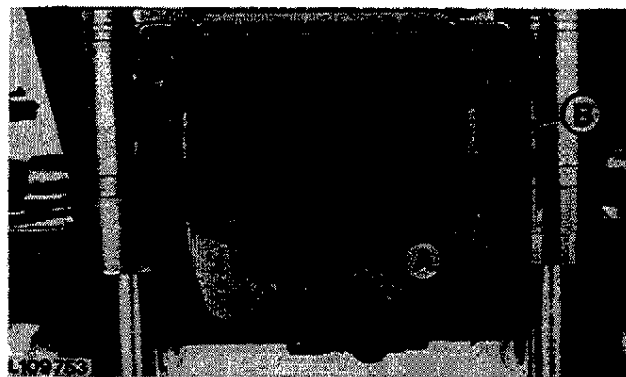
Remove connecting rod (B).
Remove cap screw (A).
Unscrew special nut (C).



L109555-LA71025AE-260385

DRAINING TRANSMISSION OIL

Remove drain plug (A) and when equipped, cover (B).

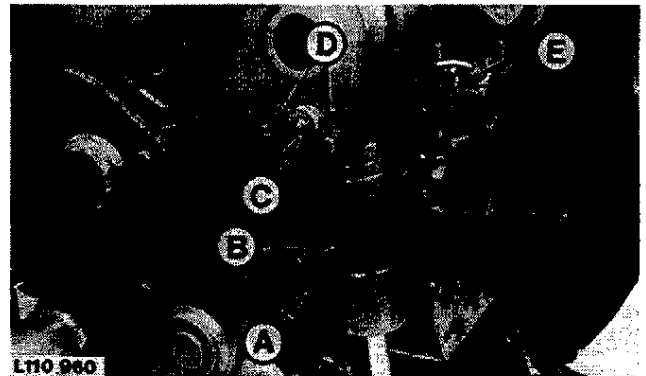


L109 753

L109753-LA71025AE-260385

DISCONNECTING LIFT CYLINDER AT THE TOP

Disconnect pressure line (A) at lift cylinder (B).
Remove cap screws (D) and pull out pin (C).
Position rockshaft cylinder to the front.
Disconnect line (E) and remove connecting adapter.



L110960-LA11025AE-000885

DISCONNECTING RETURN LINE

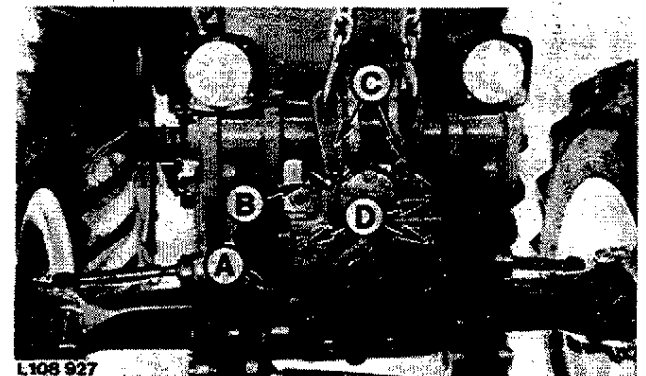
Disconnect return line (A) at hose connection.
Disconnect pressure line (B).
Disconnect cable (C) at plug and pull down. Remove strap and pull cable downwards.



L108924-LA71025AE-270385

ATTACHING LIFTING EYES

Disconnect pressure line (A).
Disconnect bleed line (B).
Secure lifting eyes (C) (JD 244-1) with both top cap screws.
Attach to suitable hoist.
Remove the three cap screws (D).
Roll front PTO away towards front.

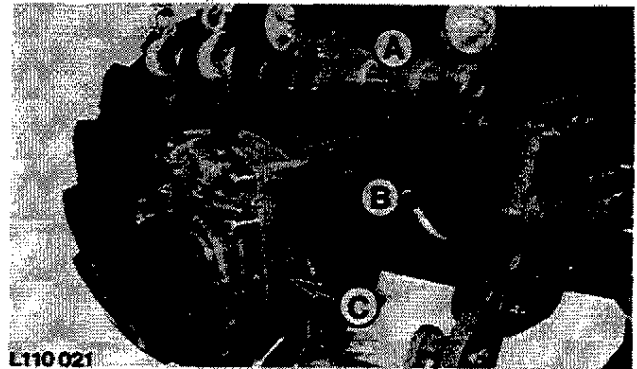


L108927-LA71025AE-000385

INSTALLING FRONT PTO

Insert bushing (A) into front axle carrier bore.
Using suitable hoist, approach front axle carrier
with front PTO (C).

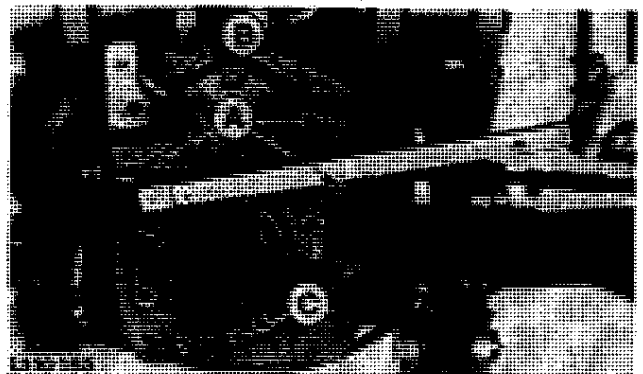
Insert splines of drive shaft (B) in hydraulic pump
connecting sleeve.



L110021-LA71025AE-270385

TIGHTENING ATTACHING SCREWS

Tighten screws (A) to 400 Nm (300 ft-lb).
Tighten screws (B) to 55 Nm (40 ft-lb).
Tighten drain plug (C) to 30 Nm (23 ft-lb).



L110185-LA71025AE-000385

FINAL ASSEMBLY

Complete installation, reversing removal procedure.

Fill with specified transmission oil. See Group 15.

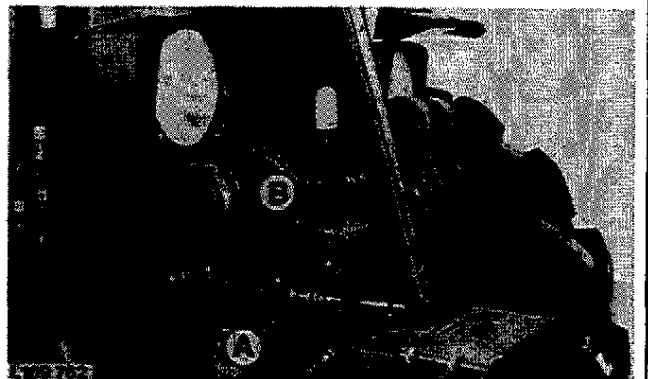
TEILEZ-LB31025LE-010267

INSTALLING FRONT PTO SHIFT LEVER

Secure shift lever using special nut (B).

Tighten cap screw (A) to 400 Nm (300 ft-lb).

Hook in connecting rod.



L108762-LA71025AE-000385

Section 20

ENGINE - REPAIR

NOTE: These tractor engines have the model designations 4239 DL 03, 04, 06, 09 and 10 or 4239 TL 06 and 07 and are dealt with in Technical Manual - Engines 3179, 4239 and 6359.

05 - RADIATOR, VISCOUS FAN DRIVE AND FAN

		2250	2450	2650	2650 N	2850
Torques for hardware	05-1	x	x	x	x	x
Special tools	05-1	x	x	x	x	x
Draining coolant	05-1	x	x	x	x	x
Removing air intake line	05-2	x	x	x	x	x
Removing bottom coolant hose	05-2	x	x	x	x	x
Removing top coolant hose	05-2	x	x	x	x	x
Removing condenser	05-2	x	x	x		x
Removing oil cooler	05-3	x	x	x	x	x
Removing radiator	05-3	x	x	x	x	x
Installing radiator	05-3	x	x	x	x	x
Removing viscous fan drive	05-3	x	x	x	x	x
Removing fan	05-4	x	x	x	x	x
Replacing fan or compressor V-belt	05-4	x	x	x	x	x
Checking fan V-belt tension	05-5	x	x	x	x	x
Checking compressor V-belt tension	05-5	x	x	x		x

MOTOR-LB32001AE-010888

Group 05

RADIATOR, VISCOUS FAN DRIVE AND FAN

TORQUES FOR HARDWARE

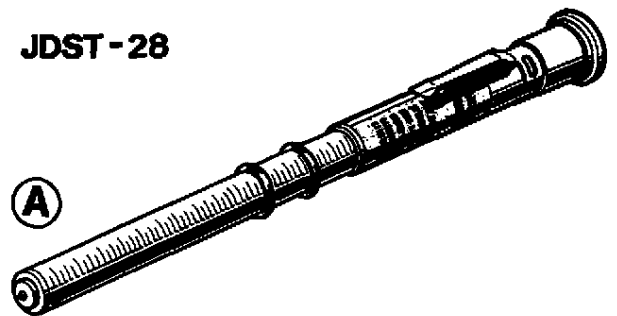
Hydraulic Pumps without Through Drive Shaft	
– Pump drive to drive shaft, cap screws	50 Nm (35 ft-lb)
Hydraulic Pumps with Through Drive Shaft	
– Damper to pump drive, hex. socket screws	140 Nm (100 ft-lb)

KUEHLER-LB22005AE-000488

SPECIAL TOOLS

JDST - 28

A-Checking V-belt tension



L 114 923

L114923-LB22005AE-010488

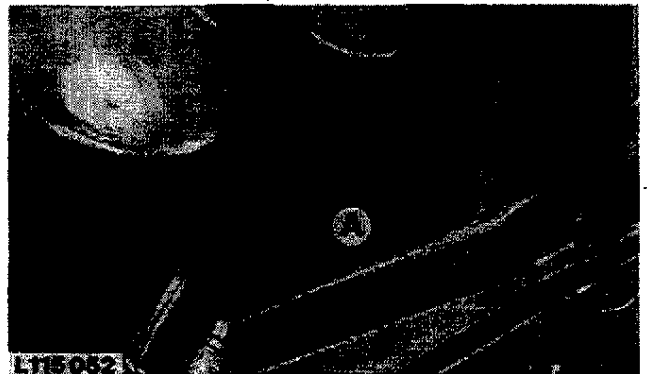
DRAINING COOLANT

Open drain tap (A).
Drain coolant into a suitable container.

Capacities:
Tractors without cab or with
MC1 cab (without heater): 13 liters (3.4 U.S. gal.)

Tractors with SG2 or
MC1 cab (with heater): 15 liters (4.0 U.S. gal.)

NOTE: Open cab heater control completely.



L115052-LB32005AE-010888

REMOVING AIR INTAKE LINE

Remove tie straps (B). Disconnect air intake line (A) at air cleaner support and engine intake manifold and remove.

NOTE: Seal intake manifold and air cleaner openings.

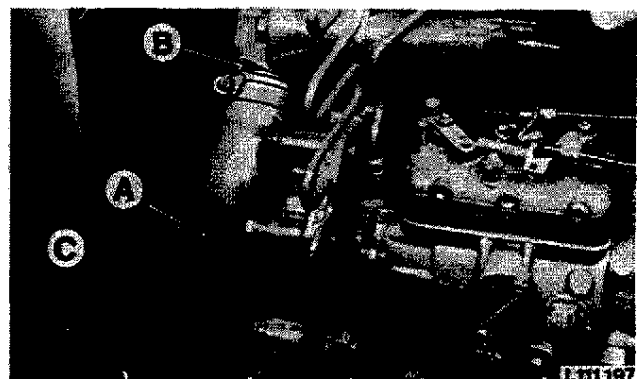
Disconnect oil leak-off and breather line (C) at oil reservoir.



L116211-LB32005AE-010888

REMOVING BOTTOM COOLANT HOSE

Disconnect coolant hose (A) at water pump (B) and radiator (C).



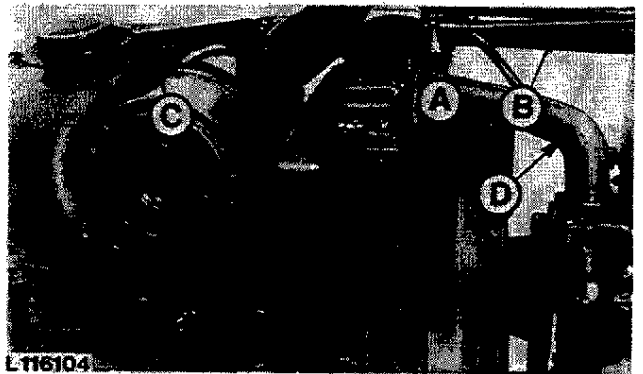
L111197-LB32005AE-010888

REMOVING TOP COOLANT HOSE

Disconnect coolant hose (D) at radiator. Remove cap screw (A) of radiator support rod (B). Disconnect fuel return line (C) and breather line (when equipped) at connection to tank.

A—Cap screw
B—Support rod

C—Fuel return line
D—Coolant hose



L116104

L116104-LB32005AE-010888

REMOVING CONDENSER (Tractors With Air Conditioning System)

Remove cap screws (A).

Pull out condenser (B) to the left-hand side and place in a safe position to prevent from falling.

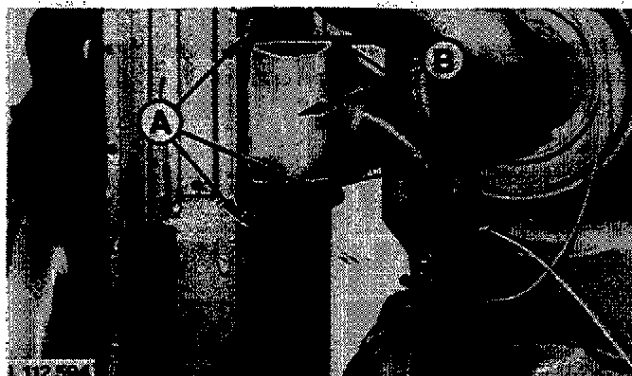


L114868-LB21025AE-010888

REMOVING OIL COOLER

IMPORTANT: On tractors with universal-jointed drive shaft brake, completely cover brake to ensure no oil drops onto brake linings.

A—Attaching screws
B—Oil cooler



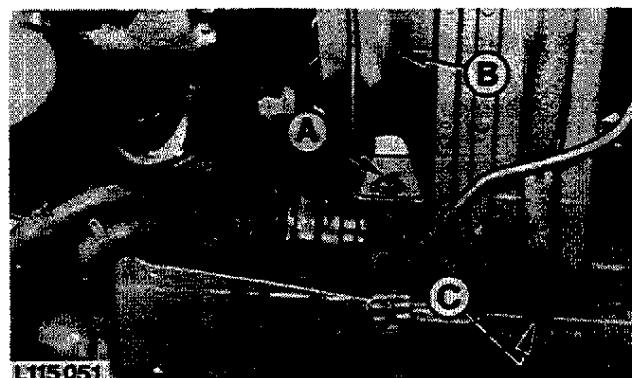
L112594-LB22005AE-010886

REMOVING RADIATOR

Remove attaching screws (A) of air shroud (B) at radiator.

Remove radiator attaching screws (C).

Lift out radiator.



L115051-LB32005AE-010287

INSTALLING RADIATOR

Install radiator, reversing removal procedure.

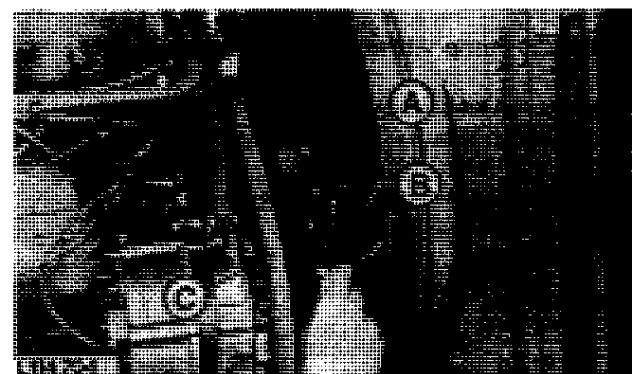
Fill cooling system with coolant (see Operator's Manual).

KUEHLER-LA72005AE-000285

REMOVING VISCOUS FAN DRIVE

Slacken V-belt (C).

Remove hex. nuts (A and B) and, holding fan drive firmly, move assembly forward.



L114704-LB22005AE-000886

Radiator, Viscous Fan Drive and Fan

Tilt fan upward in air shroud and remove viscous fan drive between two of the fan blades.



L114705-LB22005AE-000886

REMOVING FAN

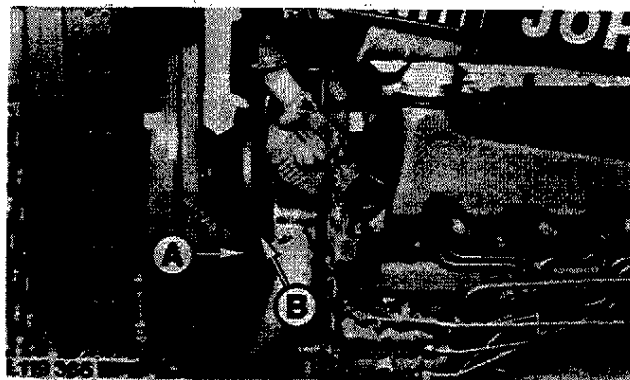
NOTE: When equipped, the viscous fan drive must be removed before attempting to remove fan.



L114706-LB22005AE-000886

REPLACING FAN OR COMPRESSOR V-BELT

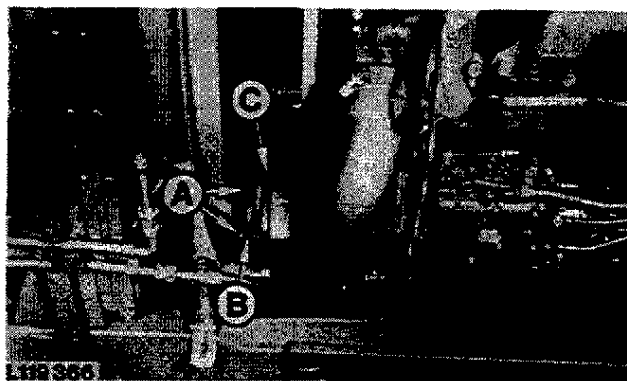
Slacken alternator V-belt (A) and compressor V-belt (B).



L119365-LB22005AE-010488

Hydraulic Pump Without Through Drive Shaft

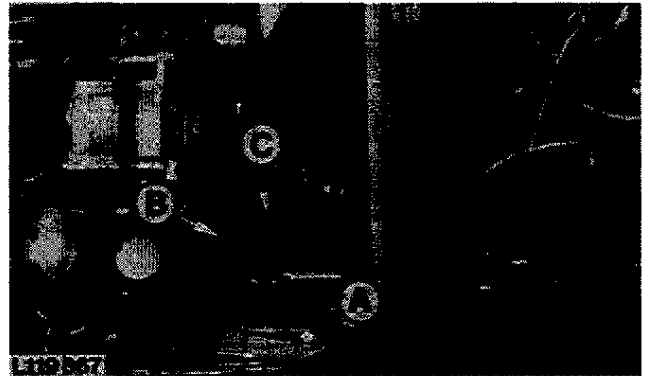
Remove fan and shroud.
Remove cap screws (A).
Turn pump drive shaft (B) a 1/4 turn clockwise.
Remove front coupler (C) and carrier.
Remove V-belt(s).



L119366-LB22005AE-000488

Hydraulic Pump With Through Drive Shaft

Remove fan and shroud.
Remove hexagon socket screws (A).
Slide damper (C) to the front. Remove V-belts between V-belt pulley (B) and damper (C).



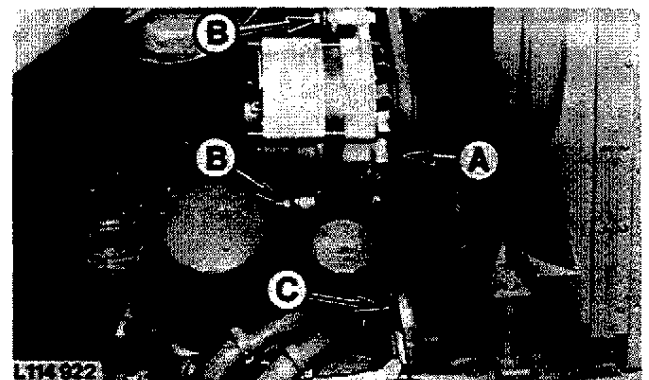
L119367-LB22005AE-000488

CHECKING FAN V-BELT TENSION

Using belt tension gauge JDST-28 (C), check tension of fan V-belt.

Fan V-belt should have 19 mm (3/4 in.) flex with 90 N (20 lb) pull midway between crankshaft and alternator.

A-Fan V-belt
B-Attaching nut
C-Belt tension gauge JDST-28



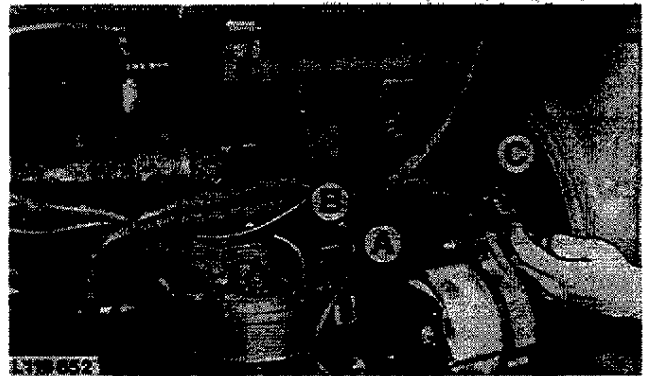
L114922-LB21010AE-010886

CHECKING COMPRESSOR V-BELT TENSION (Tractors With Air Conditioning System)

Using belt tension gauge JDST-28 (A), check tension of compressor V-belt.

Compressor V-belt should have 19 mm (3/4 in.) flex with 60 N (13 lb) pull midway between both pulleys.

A-Belt tension gauge JDST-28
B-Adjusting screw
C-Compressor V-belt



L118852-LB31010AE-010287

FUEL AND AIR INTAKE SYSTEM – REPAIR

NOTE: These tractors' fuel transfer pump, fuel filter, fuel injection pump, fuel injection nozzles and turbocharger are dealt with in Technical Manual – Engines 3179, 4239 and 6359.

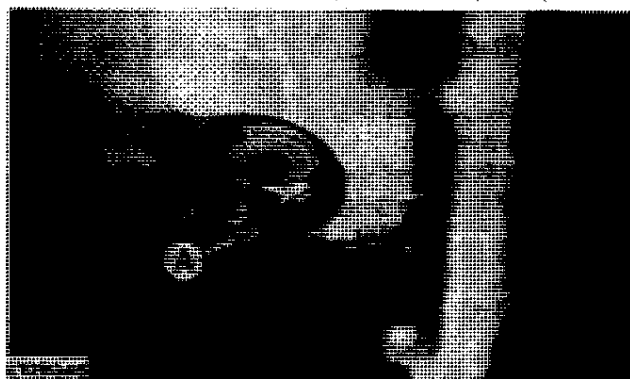
		2250	2450	2650	2650 N	2850
05 – FUEL TANK, AUXILIARY FUEL TANK AND WATER TRAP						
Draining fuel	05-1	x	x	x	x	x
Removing fuel tank	05-1	x	x	x	x	x
Removing auxiliary fuel tank	05-2	x	x	x		x
Repairing fuel tank and auxiliary fuel tank	05-2	x	x	x	x	x
Installing fuel tank and auxiliary fuel tank	05-2	x	x	x	x	x
Water trap, exploded view	05-3	x	x	x	x	x
10 – COLD WEATHER STARTING AIDS						
Torques for hardware	10-1	x	x	x	x	x
Electric starting aid, exploded view	10-1	x	x	x		x
Electric ether starting fluid aid, exploded view	10-1	x	x	x		x
Manual ether starting fluid aid, exploded view	10-2	x	x	x	x	x
Fuel pre-heater, exploded view	10-2	x	x	x	x	x
15 – SPEED CONTROL LINKAGE						
Specifications	15-1	x	x	x	x	x
Speed control linkage, exploded view	15-1	x	x	x	x	x
Adjusting speed control linkage	15-3	x	x	x	x	x
Adjusting foot throttle (with SG2 cab)	15-3	x	x	x		x
Adjusting hand throttle lever	15-4	x	x	x	x	x
Adjusting hand throttle lever friction resistance	15-4	x	x	x	x	x
20 – AIR CLEANER						
Air cleaner, exploded view	20-1	x	x	x	x	x
Installing air cleaner	20-1	x	x	x	x	x

Group 05 FUEL TANK, AUXILIARY FUEL TANK AND WATER TRAP

DRAINING FUEL

Fuel tank capacity 84 liters
(22.2 U.S. gal.)

Open drain tap (A) and drain fuel into a suitable container.



Auxiliary fuel tank capacity (when equipped) 52 liters
(13.75 U.S. gal.)

Open drain tap (A) and drain auxiliary tank into a suitable container.



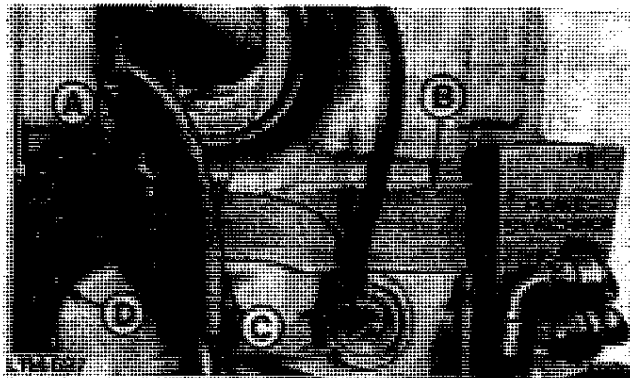
L109546, L108565-LB33005AE-010888

REMOVING FUEL TANK

Remove air cleaner. When equipped, disconnect condenser (D) at radiator and pull out to the left. Remove both brackets (B). Tilt hydraulic oil reservoir (C) with bracket (A) towards radiator and remove fuel tank.

A-Bracket
B-Bracket

C-Hydraulic oil reservoir
D-Condenser



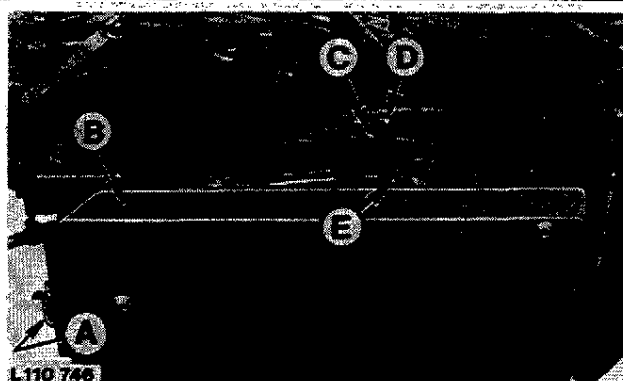
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REMOVING AUXILIARY FUEL TANK

Remove cap screws (A).
Remove cover (B).
Disconnect breather line (C) and suction line (D).
Pull cable from fuel gauge sending unit.

A—Cap screw
B—Cover plate
C—Breather line

D—Suction line
E—Inlet line

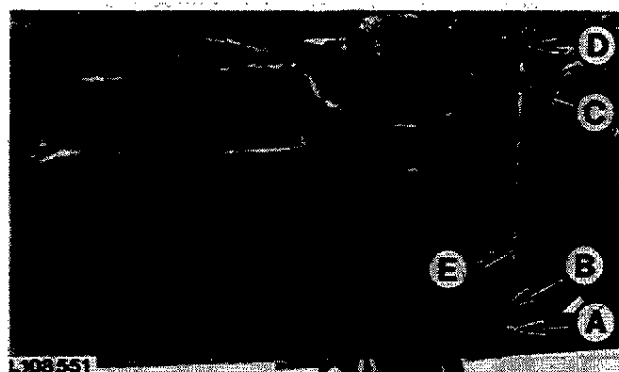


L110746-LA71025AE-000385

Unscrew cap screws (A and B). Remove hex. nut (E).
Turn cap screw (C) upwards and remove tank.

A—Cap screw
B—Cap screw
C—Cap screw

D—Hex. nut
E—Hex. nut



L108551-LA71025AE-180385

REPAIRING FUEL TANK AND AUXILIARY FUEL TANK



CAUTION: Cleaning and repairing a fuel tank is very dangerous. Do not smoke or permit live sparks or fire of any nature in the vicinity while cleaning or repairing a fuel tank.

TANK-LA73005AE-170485

INSTALLING FUEL TANK AND AUXILIARY FUEL TANK

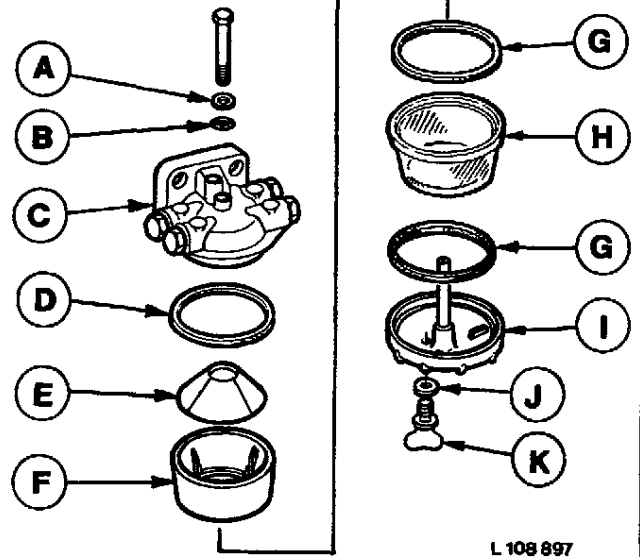
Install fuel tank and auxiliary fuel tank, reversing removal procedure.

NOTE: When installing both sending units, make sure that both floats can move freely up and down.

TANK-LA73005BE-170485

WATER TRAP, EXPLODED VIEW

- A-Washer
- B-O-ring
- C-Cover
- D-Seal ring
- E-Funnel
- F-Housing
- G-Seal ring (2 used)
- H-Glass bowl
- I-Cover
- J-Seal ring
- K-Water drain plug



L108897-LA73005AE-170485

Group 10 COLD WEATHER STARTING AIDS

TORQUES FOR HARDWARE

ELECTRIC STARTING AID

Burner in intake manifold 20 Nm (14.5 ft-lb)

FUEL PRE-HEATER

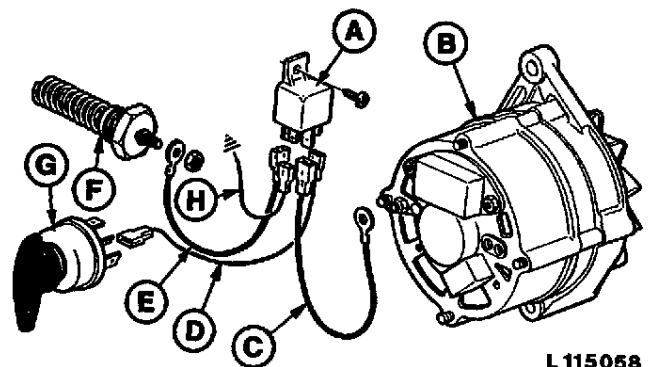
Burner in filter base plate 15 Nm (11 ft-lb)

KALTSTART-LB43010AE-000687

ELECTRIC STARTING AID, EXPLODED VIEW

A-Relay
B-Alternator
C-Cable from alternator
to relay
D-Cable from start switch
to relay

E-Cable from relay
to glow plug
F-Glow plug
G-Start switch
H-Ground cable



L115058-LB23010AE-000488

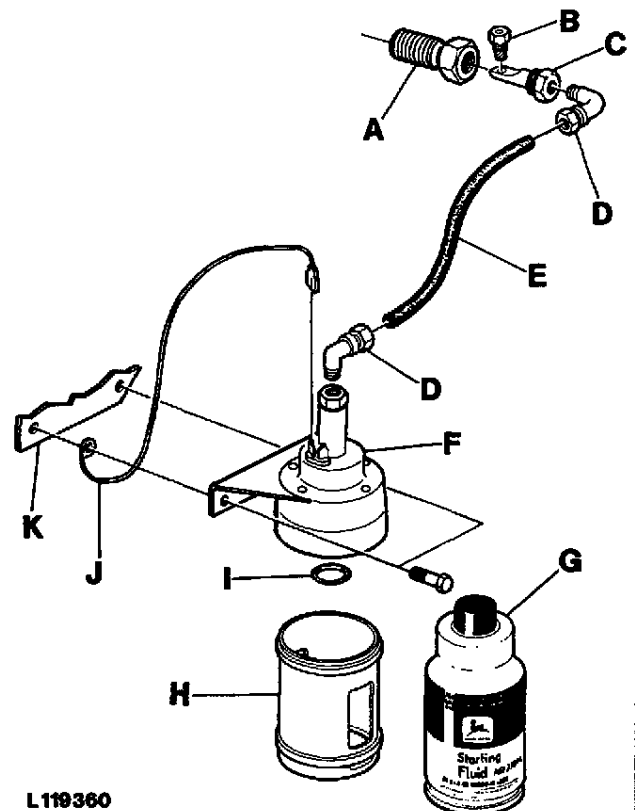
ELECTRIC ETHER STARTING FLUID AID, EXPLODED VIEW



CAUTION: Ether starting fluid is highly flammable.

When cleaning spray nozzle (B), make sure that bore is not enlarged or damaged.

A-Adapter
B-Spray nozzle
C-Nozzle holder
D-Elbow fittings
E-Pressure line
F-Solenoid
G-Pressure can with spray fluid
H-Bracket
I-O-ring
J-Ground cable
K-Strap



L119360

L119360-LB23010AE-000488

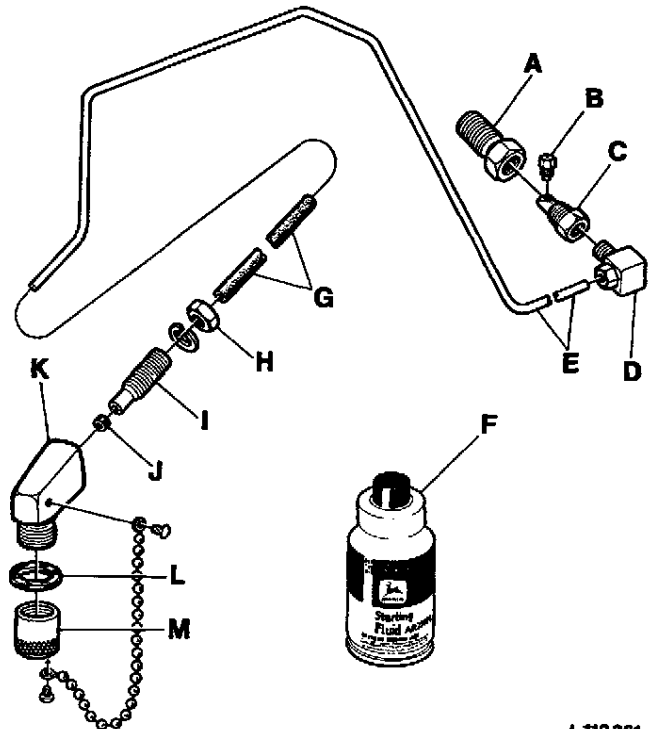
MANUAL ETHER STARTING FLUID AID, EXPLODED VIEW



CAUTION: Ether starting fluid is highly flammable.

When cleaning spray nozzle (B), make sure that bore is not enlarged or damaged.

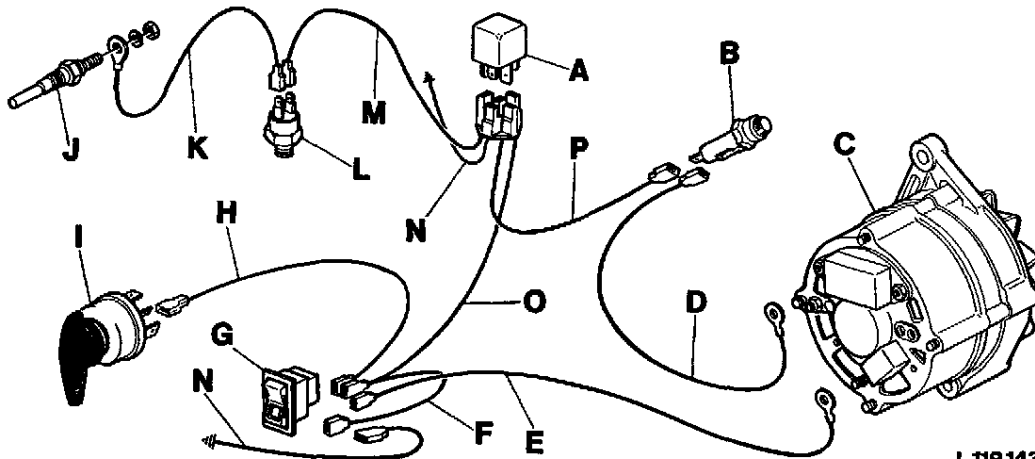
- A-Adapter
- B-Spray nozzle
- C-Nozzle holder
- D-Elbow fitting
- E-Pressure line
- F-Pressure can with spray fluid
- G-Hose
- H-Hex nut
- I-Threaded fitting
- J-Seal ring
- K-Adapter
- L-Seal ring
- M-End cap



L 119 361

L119361-LB23010AE-010488

FUEL PRE-HEATER, EXPLODED VIEW



L 119 143

- A-Relay
- B-Fuse holder
- C-Alternator
- D-Cable from alternator to fuse holder
- E-Cable from alternator to tumbler switch

- F-Bridge cable
- G-Tumbler switch
- H-Cable from start switch to tumbler switch
- I-Start switch
- J-Glow plug

- K-Cable from temperature switch to glow plug
- L-Temperature switch
- M-Cable from relay to temperature switch

- N-Ground cable
- O-Cable from tumbler switch to relay
- P-Cable from fuse holder to relay

L119143-LB23010AE-010488

SPECIFICATIONS

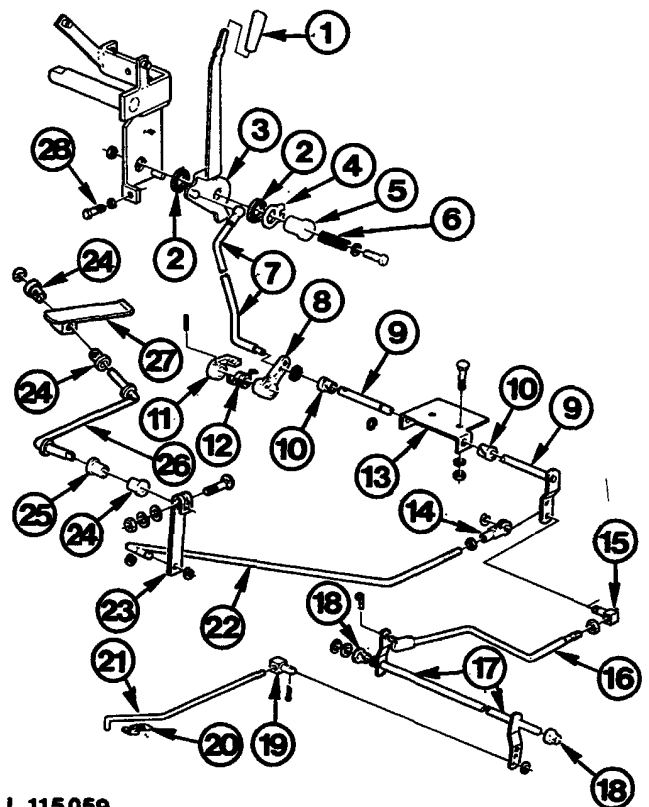
Slow idle speed	750 to 850 rpm
Fast idle speed:	
– With synchronized transmission	2410 to 2510 rpm
– With collar shift transmission	2610 to 2660 rpm
Hand throttle lever friction resistance (with SG2 cab)	13.5 N (3 lb)
Clearance between throttle pedal and floor (with SG2 cab)	40 mm (1.57 in.)

DREHZAHL-LB33015AE-010888

SPEED CONTROL LINKAGE, EXPLODED VIEW

Tractors With SG2 Cab

- | | |
|-----------------------|-------------------------------|
| 1–Lever knob | 15–Swivel joint |
| 2–Friction disks | 16–Connecting rod |
| 3–Hand throttle lever | 17–Lever shaft |
| 4–Friction plate | 18–Bushings |
| 5–Bushing | 19–Swivel joint |
| 6–Spring | 20–Safety strap |
| 7–Connecting rod | 21–Speed control rod |
| 8–Lever | 22–Connecting rod |
| 9–Lever shaft | 23–Lever |
| 10–Bushings | 24–Bushings |
| 11–Lever | 25–Bushing |
| 12–Return spring | 26–Lever shaft |
| 13–Bracket | 27–Throttle pedal |
| 14–Yoke | 28–Slow idle speed stop screw |

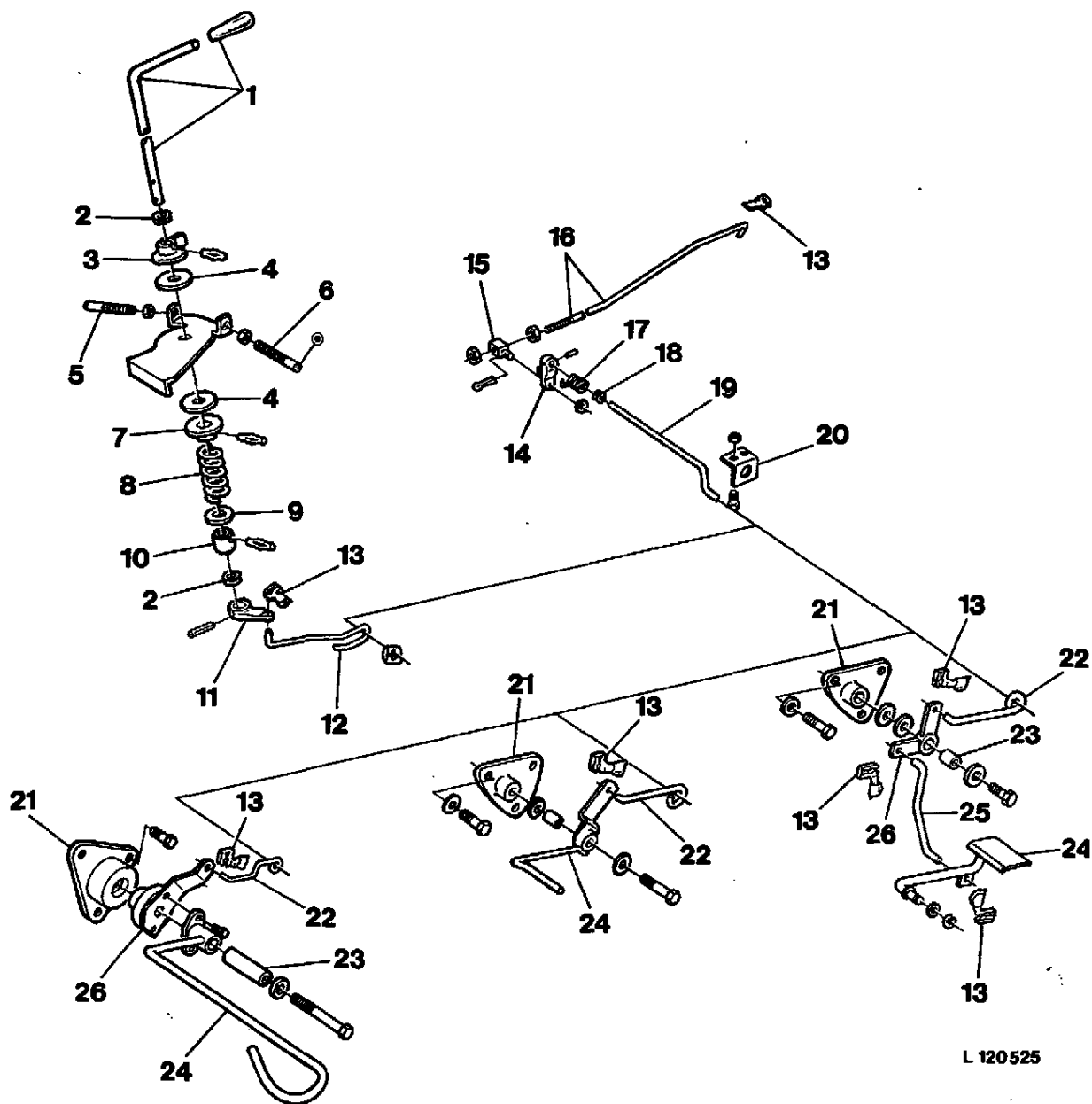


L 115 059

L115059-LB33015AE-010888

Speed Control Linkage

Tractors Without SG2 Cab or With MC1 Cab



L 120525

- | | |
|------------------------------|-------------------|
| 1-Hand throttle | 7-Thrust washer |
| 2-Bushings | 8-Spring |
| 3-Stop disk | 9-Washer |
| 4-Washer | 10-Bushing |
| 5-Slow idle speed stop screw | 11-Lever |
| 6-Fast idle speed stop screw | 12-Connecting rod |

- | |
|----------------------|
| 13-Safety strap |
| 14-Lever |
| 15-Swivel piece |
| 16-Speed control rod |
| 17-Spring |
| 18-Bushing |
| 19-Lever shaft |

- | |
|-------------------|
| 20-Bracket* |
| 21-Bearing plate |
| 22-Connecting rod |
| 23-Bushing |
| 24-Throttle pedal |
| 25-Lever shaft |
| 26-Lever |

* With MC1 cab

L120525-LB33015AE-010888

Speed Control Linkage

ADJUSTING SPEED CONTROL LINKAGE

Check adjustment of speed adjustment lever (A) before adjusting speed control rod (C).

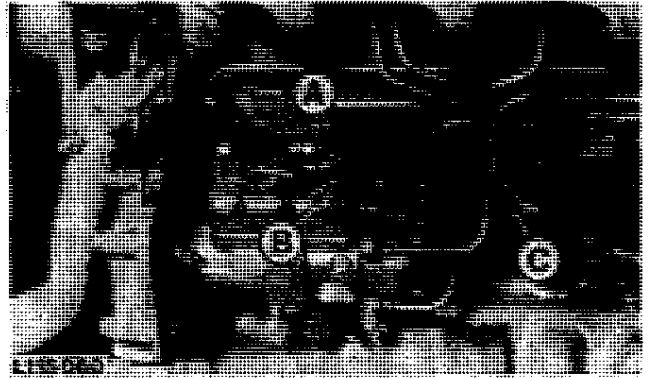
Slow idle speed: 750 to 850 rpm

Fast idle speed:

- With synchronized transmission: 2410 to 2510 rpm
- With collar shift transmission: 2610 to 2660 rpm

If necessary, adjust fuel injection pump stop screws (see Technical Manual – Engines).

Depress pedal fully. In this position, the stop of speed adjustment lever (A) should be against pump adjustment screw (B). If necessary, adjust speed control rod (C).

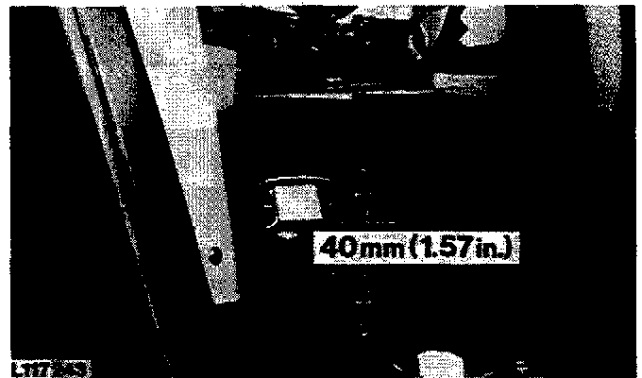


L115060-LB33015AE-010888

ADJUSTING THROTTLE PEDAL (Tractors With SG2 Cab)

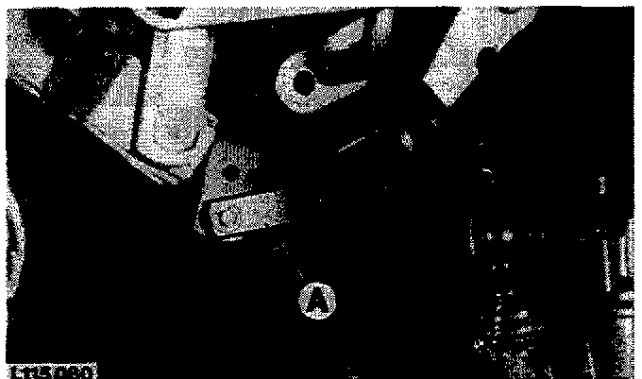
Push the hand throttle lever fully forward to fast idle speed position.

The clearance between throttle pedal and platform plate should now be 40 mm (1.57 in.).



L117243-LB33015AE-010888

If necessary, adjust clearance by adjusting yoke (A).

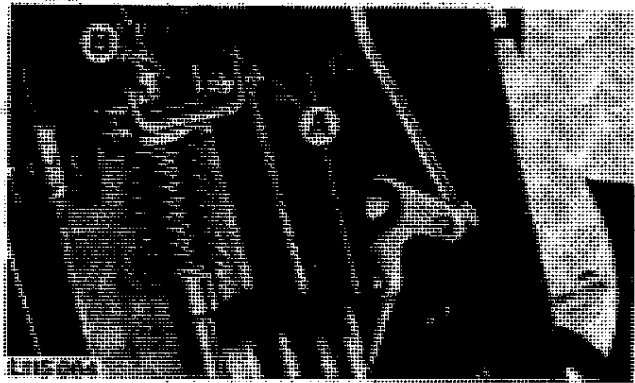


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ADJUSTING HAND THROTTLE LEVER

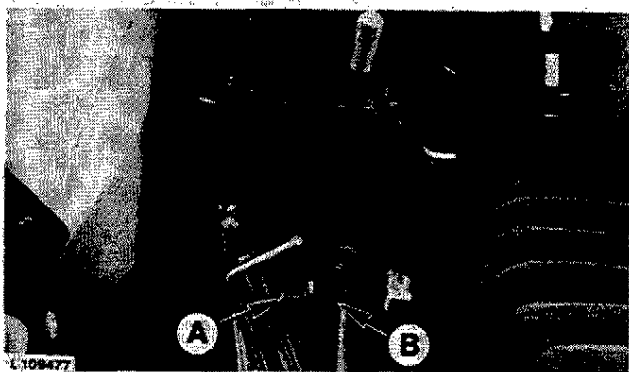
Tractors Without Cab or With MC1 Cab

Turn hand throttle lever counter-clockwise until specified slow idle speed is reached. In this position, adjust stop screw (A) so that it lies against stop (B).



Tractors With SG2 Cab

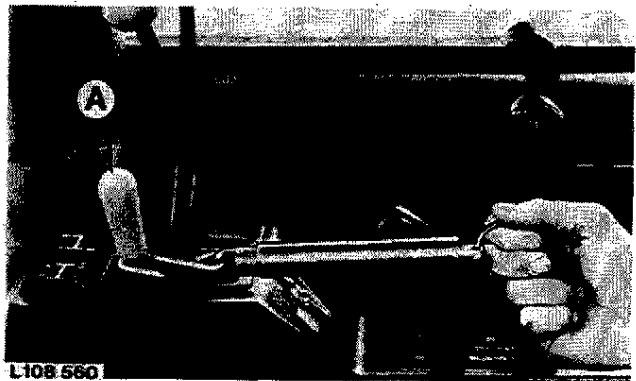
Pull back hand throttle lever until specified slow idle speed is reached. In this position, adjust stop screw (A) so that it lies against stop (B).



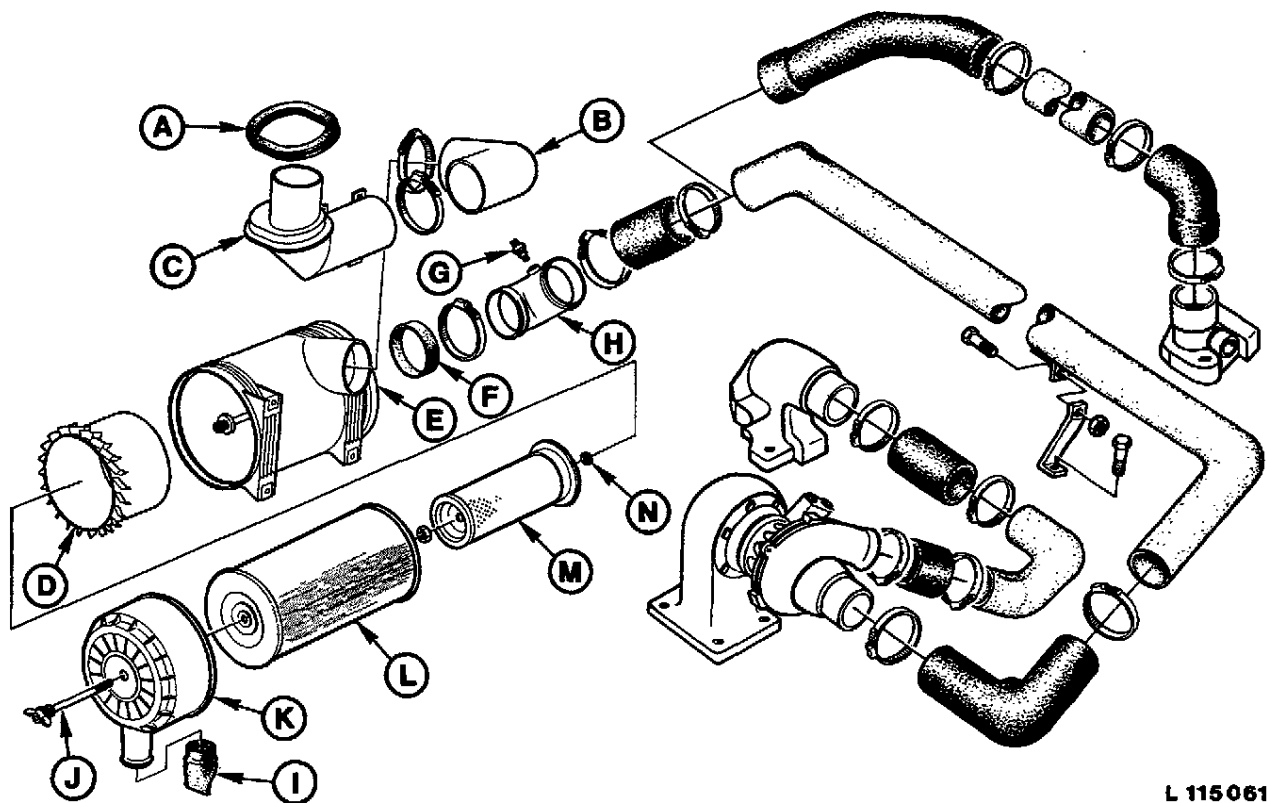
ADJUSTING HAND THROTTLE LEVER FRICTION RESISTANCE (Tractors With SG2 Cab)

Adjust clamping screw of hand throttle lever (A) so that a force of 13.5 N (3 lb) is needed to pull back hand throttle lever.

If necessary, screw clamping screw in or out until specified force of 13.5 N (3 lb) is reached. Replace friction disks if this is not possible.



AIR CLEANER, EXPLODED VIEW



L 115 061

A-Rubber boot*
B-Hose elbow*
C-Air intake pipe*
D-Cyclonic separator
E-Air cleaner housing

F-Seal ring
G-Warning switch
H-Pipe elbow
I-Dust unloading valve
J-Wing bolt

K-Housing cover
L-Filter element
M-Safety (secondary) filter element
N-Seal ring

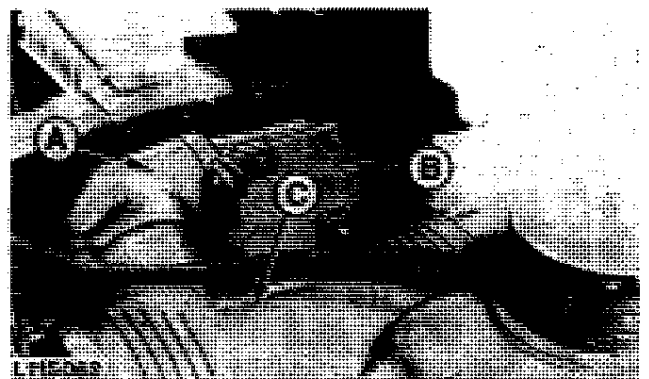
* On tractors with precleaner

L115061-LB33020AE-010287

INSTALLING AIR CLEANER

IMPORTANT: Never run engine without filter element or dust unloading valve.

Attach air cleaner (C) to bracket (B). When equipped, install pipe (A) and hose.



L115062-LB33020AE-010287

Section 40

ELECTRICAL SYSTEM – REPAIR

05 – WIRING HARNESSES

		2250	2450	2650	2650N	2850
Special tools	05-1	x	x	x	x	x
Disconnecting electrical circuit	05-1	x	x	x	x	x
Disconnecting point of engine wiring harness ...	05-2	x	x	x	x	x
Engine wiring harnesses:						
– Up to Tractor Serial No. 621 280L	05-3	x	x	x	x	x
– From Tractor Serial No. 621 281L	05-4	x	x	x	x	x
Dash wiring harnesses:						
– Without cab	05-5	x	x	x	x	x
– With MC1 cab	05-6	x	x	x		x
– With SG2 cab (up to Tractor Serial No. 649 055L)	05-7	x	x	x		x
– With SG2 cab (from Tractor Serial No. 649 056L)	05-8	x	x	x		x
– With digital speed-hour-meter	05-9	x	x	x		x
Disconnecting point – Transmission wiring harness	05-10	x	x	x	x	x
Transmission wiring harness:						
– With SG2 cab	05-11	x	x	x		x
– Without cab or with MC1 cab	05-12	x	x	x	x	x
Disconnecting point – cab wiring harness	05-13	x	x	x		x
SG2 cab wiring harnesses						
– Up to Tractor Serial No. 646 946L	05-14	x	x	x		x
– From Tractor Serial No. 646 947L	05-15	x	x	x		x
SG2 low profile cab wiring harnesses:						
– Up to Tractor Serial No. 646 946L	05-16	x	x	x		x
– From Tractor Serial No. 646 947L	05-17	x	x	x		x
MC1 cab wiring harness	05-18	x	x	x		x
Wide fenders wiring harness	05-19	x	x	x	x	x
Shell-type fenders wiring harness	05-20	x	x	x		x
Front PTO wiring harness	05-21	x	x	x		x
Hydrostatic creeper transmission wiring harness:						
– With MC1 cab	05-22	x	x	x		x
– With SG2 cab	05-23	x	x	x		x
Automatic four-wheel brake wiring harness:						
– With MC1 cab	05-24	x	x	x		x
– With SG2 cab	05-25	x	x	x		x
– With digital speed-hour-meter	05-27	x	x	x		x

ELEKTR-LB34001AE-010490

05 – WIRING HARNESSES (Contd.)

		2250	2450	2650	2650 N	2850
Removing a snap connector (dia. 3.5 mm; 0.14 in.)	05-28	x	x	x	x	x
Removing a snap connector (dia. 2 mm; 0.08 in.)	05-28	x	x	x	x	x
Removing a snap connector (dia. 1.6 mm; 0.06 in.)	05-28	x	x	x	x	x
Stripping cable ends	05-29	x	x	x	x	x
Crimping snap connectors	05-29	x	x	x	x	x
Replacing individual snap connectors	05-29	x	x	x	x	x

10 – CONTROLS AND INSTRUMENTS (With SG2 Cab)

Special tools	10-1	x	x	x		x
Specifications	10-1	x	x	x		x
Torques for hardware	10-2	x	x	x		x
Controls and instruments	10-3	x	x	x		x
Indicator light panel	10-4	x	x	x		x
Removing left and right-hand dash panel housings	10-5	x	x	x		x
Left-hand dash panel, exploded view	10-5	x	x	x		x
Right-hand dash panel, exploded view						
– With analog speed-hour-meter	10-6	x	x	x		x
– With digital speed-hour-meter	10-7	x	x	x		x
Replacing bulbs	10-8	x	x	x		x
Fuses						
– With analog speed-hour-meter	10-9	x	x	x		x
– With digital speed-hour-meter	10-10	x	x	x		x
Fuse for emergency lighting						
– With analog speed-hour-meter	10-11	x	x	x		x
Fuse for worklight relay						
– With analog speed-hour-meter	10-11	x	x	x		x
Fuse for automatic four-wheel brake						
– With analog speed-hour-meter	10-11	x	x	x		x
Controls and instruments, exploded view	10-12	x	x	x		x
Replacing magnetic sending unit of engine speed meter or digital speed-hour-meter	10-13	x	x	x		x
Installing start safety switch	10-13	x	x	x		x

		2250	2450	2650	2650 N	2850
15 – CONTROLS AND INSTRUMENTS (Without Cab)						
Special tools	15-1	x	x	x	x	x
Specifications	15-1	x	x	x	x	x
Dash panel, controls and instruments	15-2	x	x	x	x	x
Instrument cluster	15-2	x	x	x	x	x
Removing instrument cluster	15-3	x	x	x	x	x
Instrument cluster, exploded view	15-3	x	x	x	x	x
Replacing bulbs	15-4	x	x	x	x	x
Fuses	15-5	x	x	x	x	x
Controls and instruments, exploded view	15-6	x	x	x	x	x
Replacing magnetic sending unit of engine speed meter	15-7	x	x	x	x	x
Installing start safety switch	15-7	x	x	x	x	x

**20 – CONTROLS AND INSTRUMENTS
(With MC1 Cab)**

Special tools	20-1	x	x	x		x
Specifications	20-1	x	x	x		x
Dash panel, controls and instruments	20-2	x	x	x		x
Instrument cluster	20-2	x	x	x		x
Removing instrument cluster	20-3	x	x	x		x
Instrument cluster, exploded view	20-3	x	x	x		x
Replacing bulbs	20-4	x	x	x		x
Fuses	20-5	x	x	x		x
Controls and instruments, exploded view	20-6	x	x	x		x
Replacing magnetic sending unit of engine speed meter	20-7	x	x	x		x
Installing start safety switch	20-7	x	x	x		x

21 – ADJUSTMENT OF DIGITAL SPEED-HOUR METER

		2250	2450	2650	2650N	2850
Adjusting tractor code	21-1	x	x	x		x
Adjusting type code	21-1	x	x	x		x
Gear ratio adjustment	21-2	x	x	x		x
Speed-hour meter assignment list	21-3	x	x	x		x
Adjustment of tire-index radius	21-5	x	x	x		x
Tire size chart	21-6	x	x	x		x

25 – LIGHTING SYSTEM

Adjusting headlights with testing device	25-1	x	x	x	x	x
Adjusting headlights without testing device	25-1	x	x	x	x	x
Adjusting headlights mounted on cab roof	25-2	x	x	x	x	x

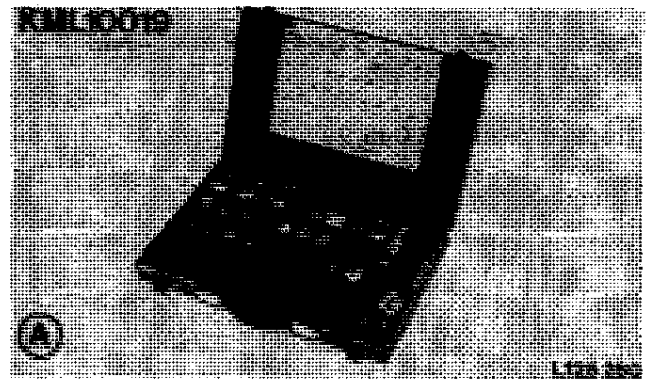
30 – STARTING MOTOR

Special tools	30-1	x	x	x	x	x
Specifications	30-1	x	x	x	x	x
Torques for hardware	30-1	x	x	x	x	x
Starting motor, sectional view	30-2	x	x	x	x	x
Starting motor, removal	30-2	x	x	x	x	x
Disassembly	30-3	x	x	x	x	x
Solenoid switch, removal	30-3	x	x	x	x	x
Carbon brush plate, removal	30-3	x	x	x	x	x
Armature, removal	30-3	x	x	x	x	x
Starting motor, exploded view	30-4	x	x	x	x	x
Snap ring, removal	30-5	x	x	x	x	x
Cleaning parts	30-5	x	x	x	x	x
Testing armature for grounds	30-5	x	x	x	x	x
Testing armature for short circuit	30-5	x	x	x	x	x
Turning commutator down	30-6	x	x	x	x	x
Testing commutator for out-of-roundness	30-6	x	x	x	x	x
Testing windings for shorted or open circuits	30-6	x	x	x	x	x
Windings, removal	30-6	x	x	x	x	x
Windings, installation	30-7	x	x	x	x	x
Checking carbon brush plate for grounds	30-7	x	x	x	x	x
Testing carbon brushes	30-7	x	x	x	x	x
Replacing carbon brushes	30-8	x	x	x	x	x
Engaging lever, installation	30-8	x	x	x	x	x
Testing armature end play	30-8	x	x	x	x	x
Lubrication of starting motor (before and during assembly)	30-9	x	x	x	x	x

		2250	2450	2650	2650 N	2850
35 – ALTERNATOR						
Special tools	35-1	x	x	x	x	x
Specifications	35-1	x	x	x	x	x
Torques for hardware	35-1	x	x	x	x	x
Alternator, sectional view	35-2	x	x	x	x	x
Alternator, removal	35-2	x	x	x	x	x
Removing brush holder with regulator	35-3	x	x	x	x	x
Alternator, disassembly	35-3	x	x	x	x	x
Stator, removal	35-3	x	x	x	x	x
Diode plate, removal	35-3	x	x	x	x	x
Alternator, exploded view	35-4	x	x	x	x	x
Testing rotor for short circuit	35-5	x	x	x	x	x
Testing rotor for grounds	35-5	x	x	x	x	x
Testing slip rings and rotor shaft for radial runout	35-5	x	x	x	x	x
Turning down slip rings	35-5	x	x	x	x	x
Testing stator coil for short circuit	35-6	x	x	x	x	x
Testing stator coil for grounds	35-6	x	x	x	x	x
Replacing carbon brushes	35-6	x	x	x	x	x
Replacing ball bearings	35-7	x	x	x	x	x
Checking positive diodes	35-7	x	x	x	x	x
Checking negative diodes	35-8	x	x	x	x	x
Testing exciting diodes	35-8	x	x	x	x	x
Diode plate, installation	35-9	x	x	x	x	x
Soldering stator coils	35-9	x	x	x	x	x
Pressing ball bearing onto rotor shaft	35-9	x	x	x	x	x
Pressing rotor into drive end frame	35-9	x	x	x	x	x
Alternator, assembly	35-10	x	x	x	x	x
Installing brush holder with regulator	35-10	x	x	x	x	x
Installing fan and belt pulley	35-10	x	x	x	x	x
Output test	35-10	x	x	x	x	x
Adjusting fan belt	35-11	x	x	x	x	x

SPECIAL TOOLS

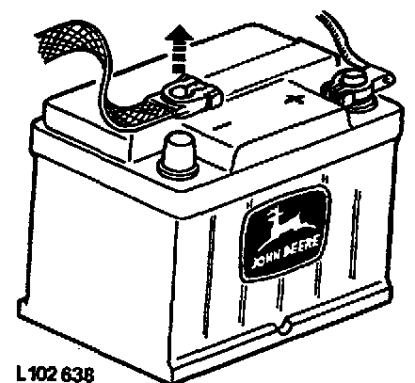
A-Wiring harness repair kit



L125280-LB34005AE-010888

DISCONNECTING ELECTRICAL CIRCUIT

Disconnect battery ground strap before carrying out any electrical repairs on the tractor.



L102 638

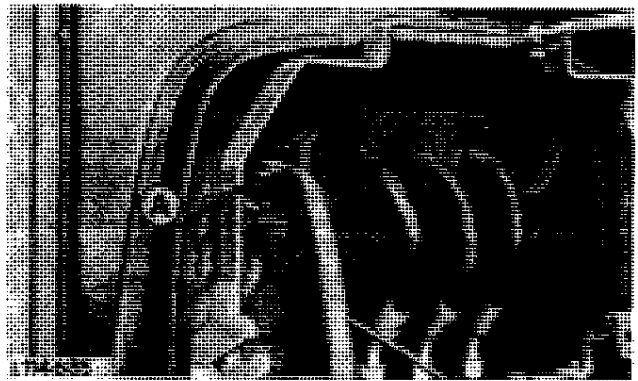
L102638-LB24005AE-010886

DISCONNECTING POINT OF ENGINE WIRING HARNESS

Tractors With SG2 Cab

Disconnecting point at rear of dash.

A-21-pin connector

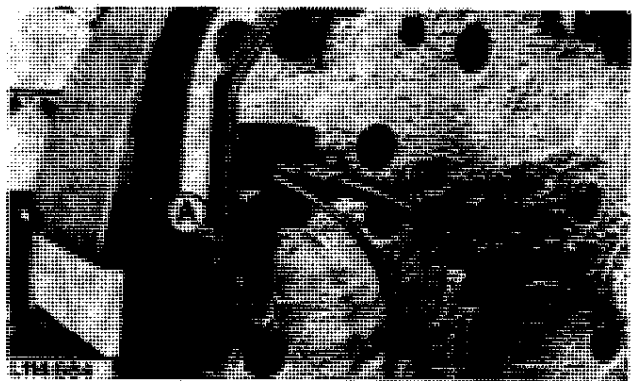


L114685-LB24005AE-010886

Tractors Without Cab

Disconnecting point at rear of dash.

A-21-pin connector

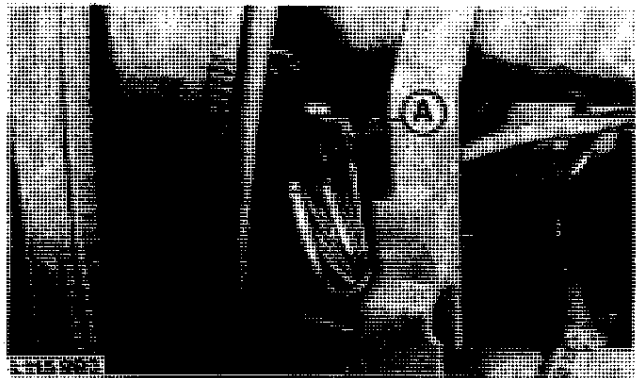


L114684-LB34005AE-010287

Tractors With MC1 Cab

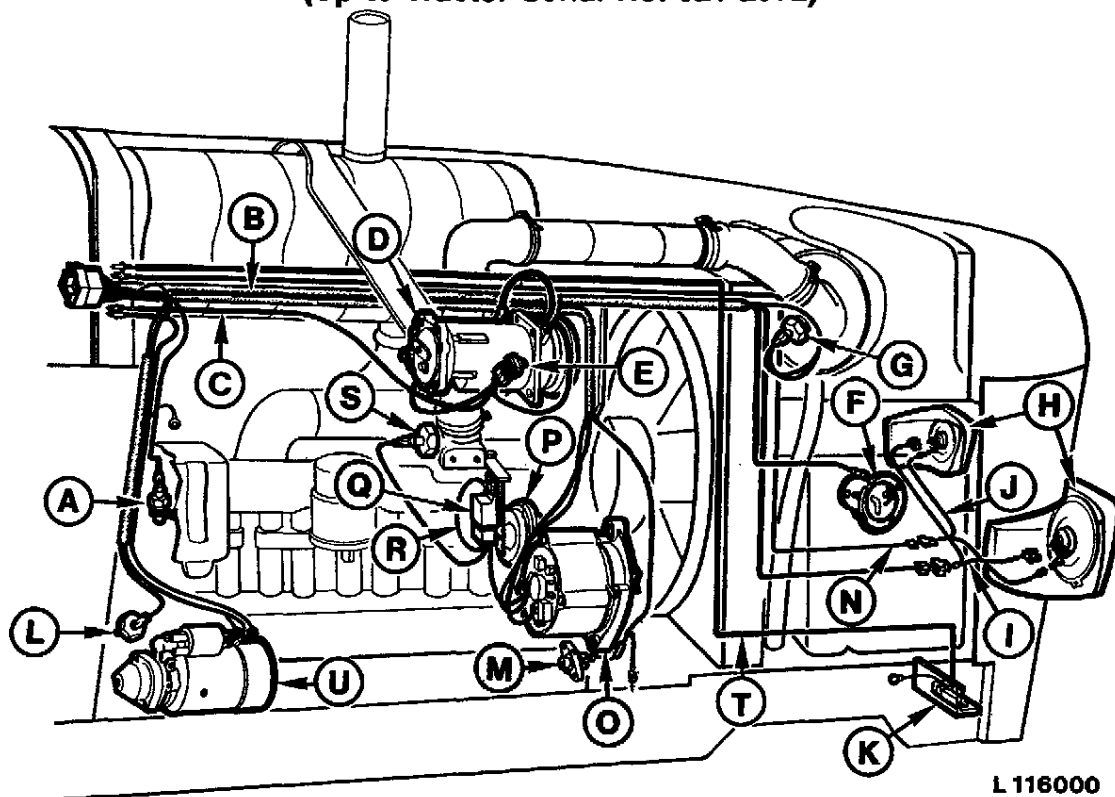
Disconnecting point at rear of dash.

A-21-pin connector



L115893-LB34005AE-010287

ENGINE WIRING HARNESSSES (Up to Tractor Serial No. 621 280L)



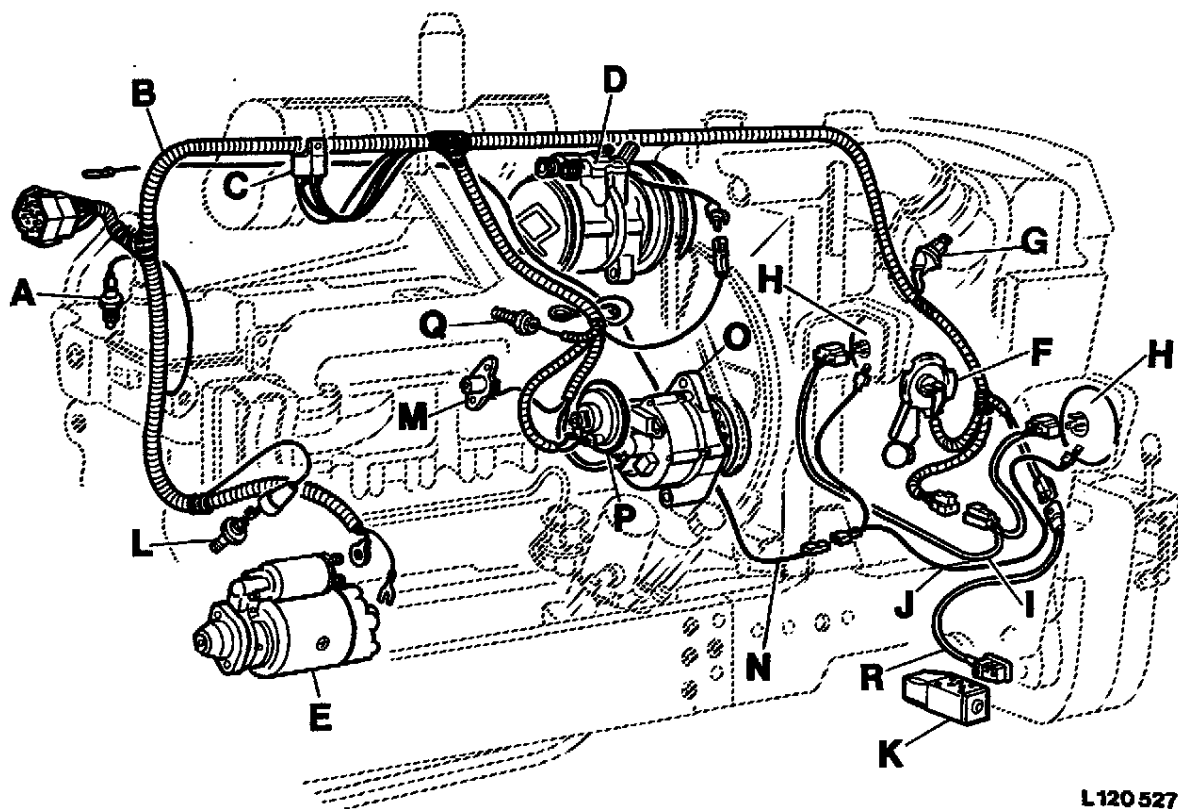
A—Coolant temperature gauge sending unit
B—Engine wiring harness
C—Compressor cable
D—Compressor
E—Thermal fuse
F—Fuel gauge sending unit
G—Air cleaner restriction indicator light sending unit

H—Headlights
I—Wiring harness (driving lights)
J—Wiring harness (parking lights)
K—Solenoid (front PTO)
L—Engine oil pressure warning switch
M—Magnetic sending unit for engine and tractor speed meter

N—Cable (parking lights)
O—Alternator
P—Horn
Q—Relay for electric starting aid
R—Ground cable
S—Burner for electric starting aid
T—Cable (front PTO)
U—Starting motor

L116000-LB34005AE-010888

ENGINE WIRING HARNESSSES (From Tractor Serial No. 621 281L)



A—Coolant temperature gauge sending unit
B—Engine wiring harness
C—Relay for electric starting aid
D—Compressor
E—Starting motor
F—Fuel gauge sending unit

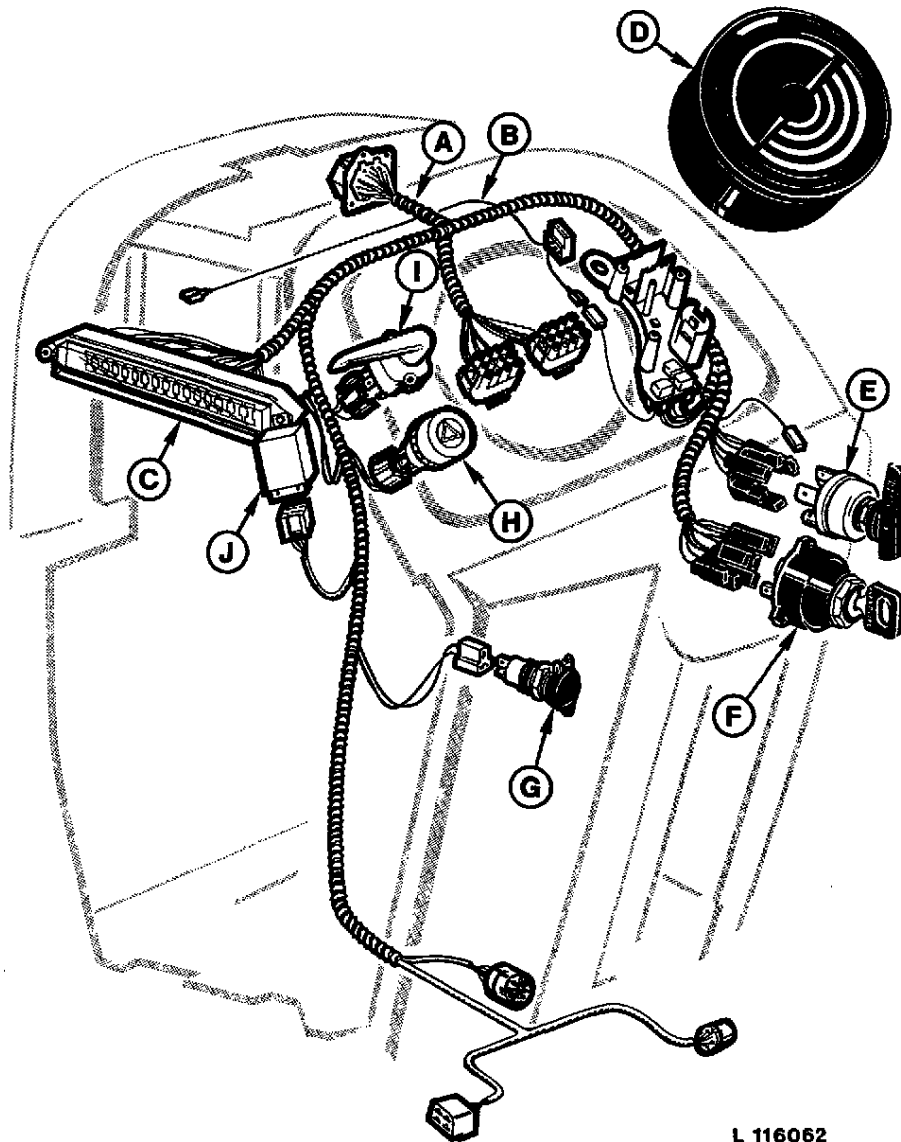
G—Air cleaner restriction indicator light sending unit
H—Headlights
I—Wiring harness (dipped headlights)
J—Wiring harness (parking lights)
K—Solenoid (front PTO)
L—Engine oil pressure indicator switch

M—Magnetic sending unit for engine and tractor speed meter
N—Cable (parking lights)
O—Alternator
P—Horn
Q—Burner for electric starting aid
R—Cable (front PTO)

L120 527

L120527-LB34005AE-010888

DASH WIRING HARNESSSES **(Tractors Without Cab)**



A-Dash wiring harness
B-Wiring harness, acoustical warning device (when equipped)
C-Fuse box

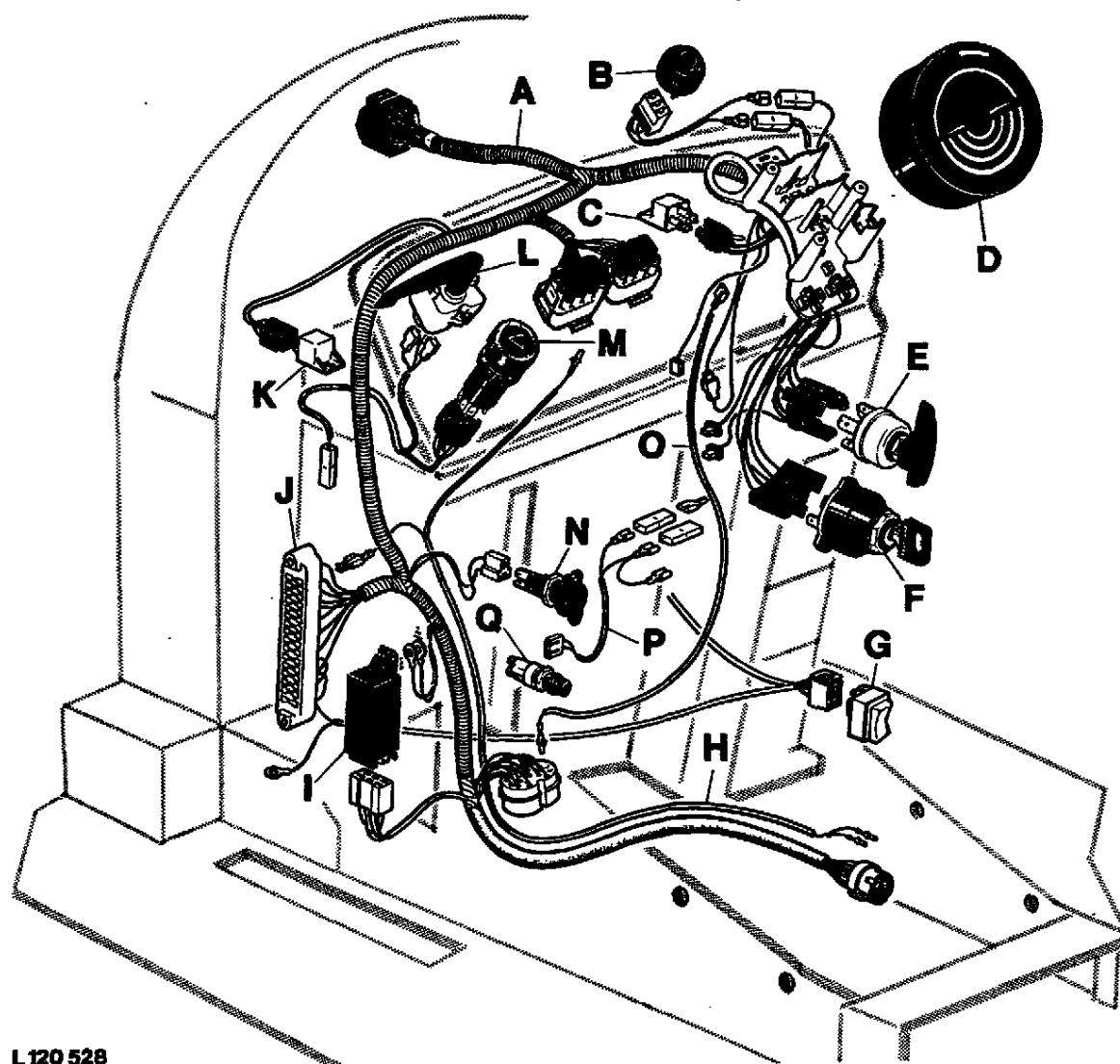
D-Instrument cluster
E-Starter switch
F-Main switch

G-Socket for handlamp
H-Hazard warning light switch
I-Turn signal switch
J-Flasher

L 116062

L116062-LB34005AE-010888

DASH WIRING HARNESSSES (Tractors With MC1 Cab)



L 120 528

A-Dash wiring harness
B-Acoustical warning device
C-Relay for worklight
D-Instrument cluster
E-Starter switch
F-Main switch

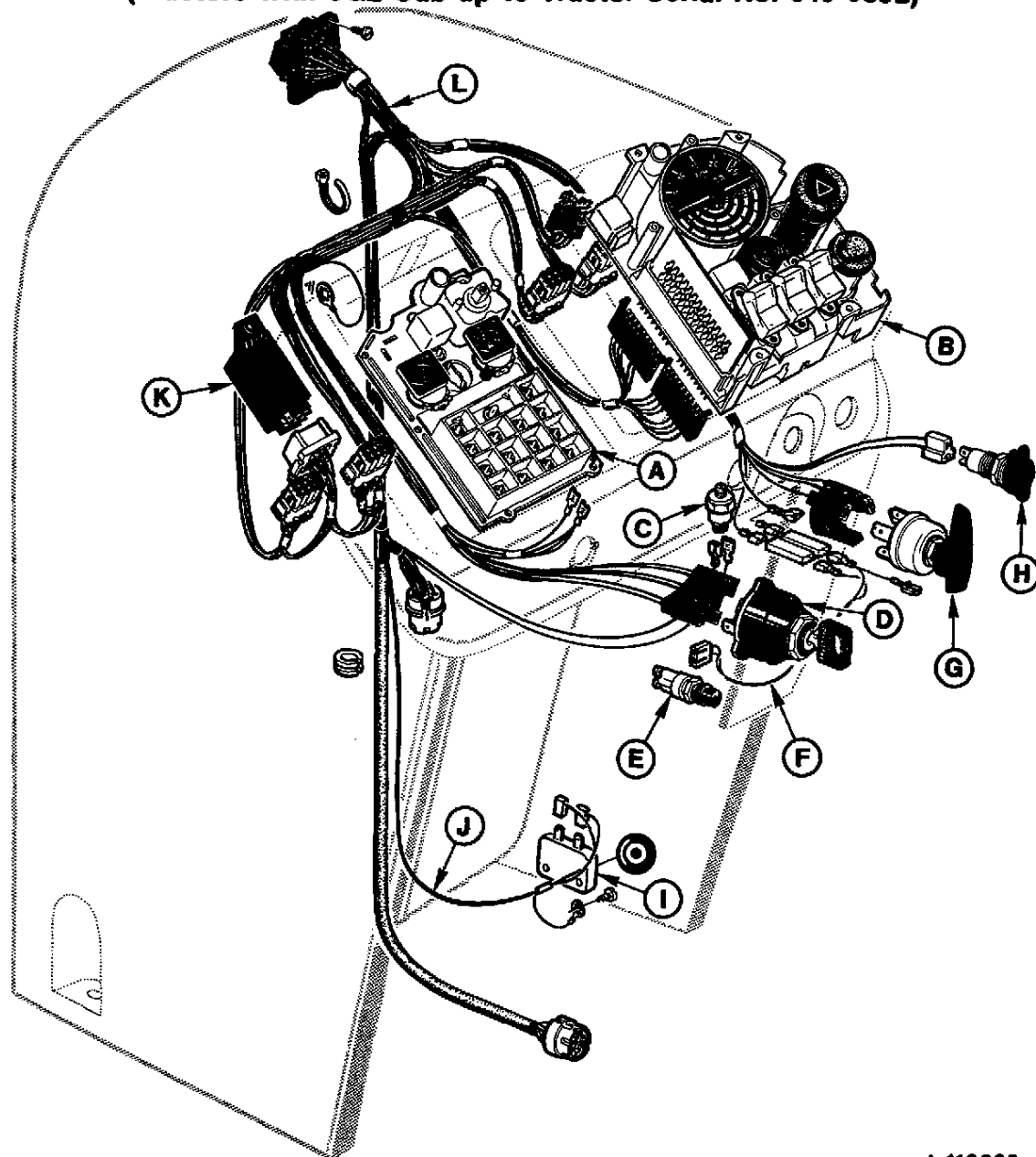
G-Fan switch
H-Wiring harness for differential lock indicator light*
I-Flasher
J-Fuse box
K-Relay for fuses 6 to 12

L-Turn signal switch
M-Hazard warning light switch
N-Socket for handlamp
O-Worklights wiring harness
P-Wiring harness for ether starting aid
Q-Button for ether starting aid

* When equipped

L120528-LB34005AE-010888

DASH WIRING HARNESSSES (Tractors With SG2 Cab up to Tractor Serial No. 649 055L)



L 116065

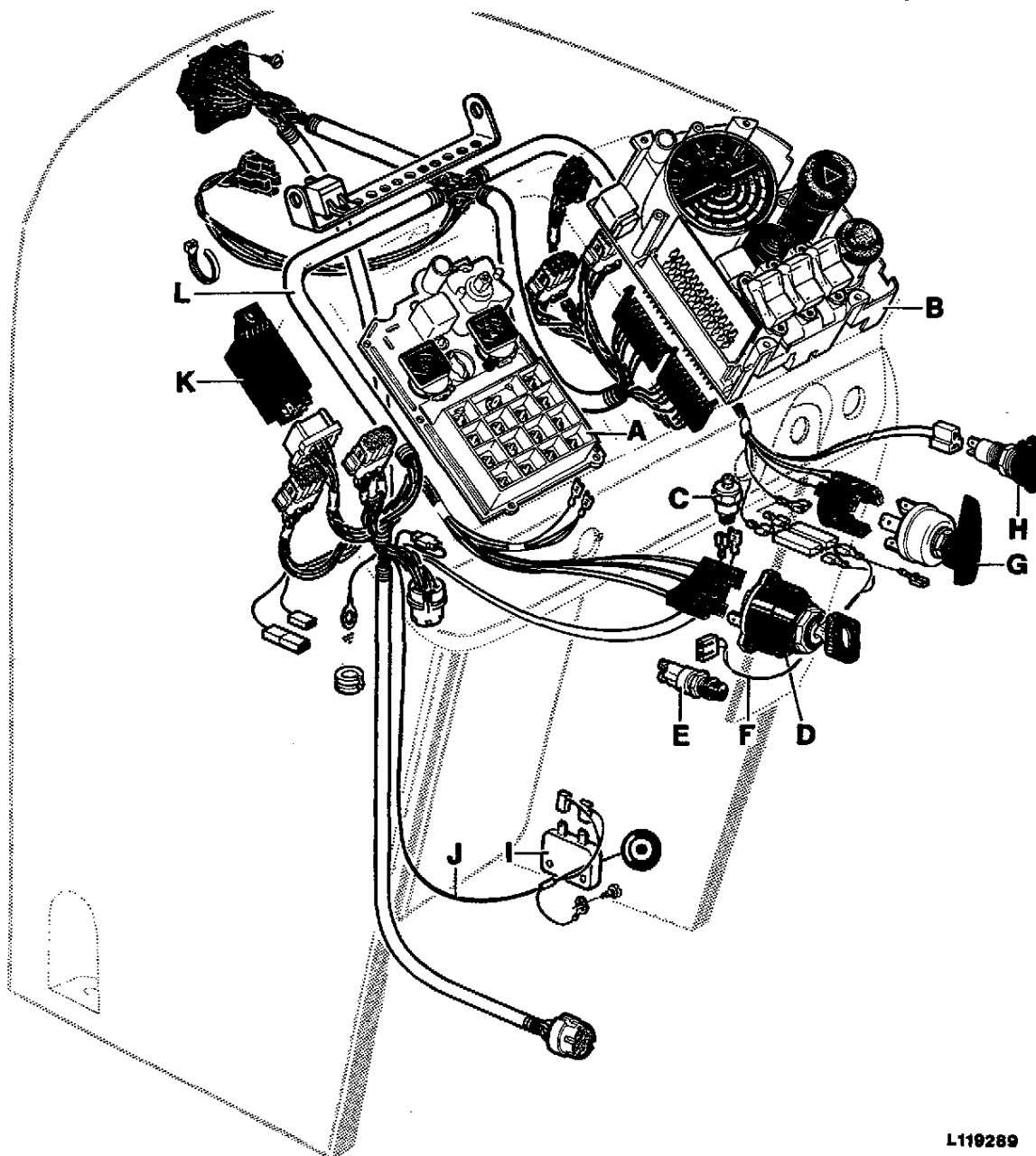
A-Instrument housing, left-hand
B-Instrument housing, right-hand
C-Stop light switch
D-Main switch
E-Push button for ether starting aid

F-Wiring harness for ether starting aid
G-Starter switch
H-Socket for handlamp
I-Sending unit for handbrake indicator light

J-Wiring harness for handbrake indicator light
K-Flasher
L-Dash wiring harness

L116065-LB34005AE-010888

DASH WIRING HARNESSSES
(Tractors With SG2 Cab from Tractor Serial No. 649 056L)



L119289

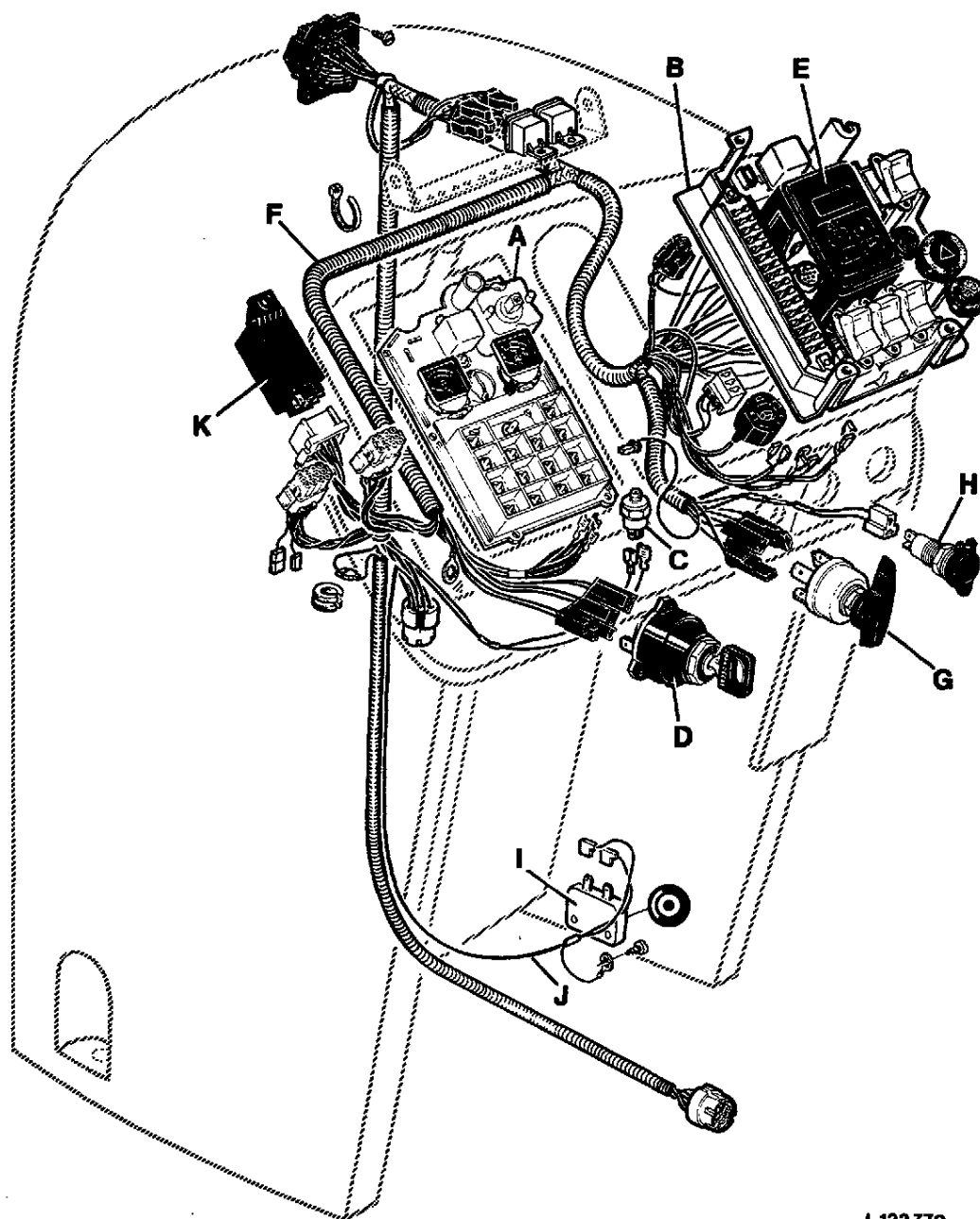
A-Instrument housing, left-hand
B-Instrument housing, right-hand
C-Stop light switch
D-Main switch
E-Push button for ether starting aid

F-Wiring harness for ether starting aid
G-Starter switch
H-Socket for handlamp
I-Sending unit for handbrake indicator light

J-Wiring harness for handbrake indicator light
K-Flasher
L-Dash wiring harness

L119289-LB24005AE-000488

DASH WIRING HARNESSSES **(Tractors With Digital Speed-Hour Meter)**



L 122 770

A-Instrument housing, left-hand
B-Instrument housing, right-hand
C-Stop light switch
D-Main switch
E-Digital speed-hour meter

F-Dash wiring harness
G-Starter switch
H-Socket for handlamp
I-Sending unit for handbrake indicator light

J-Wiring harness for handbrake indicator light
K-Flasher

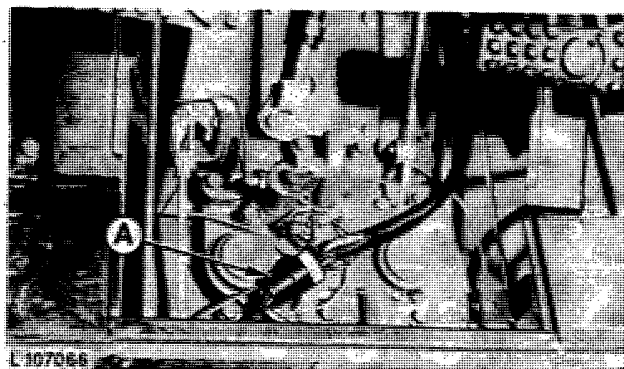
L122770-LB34005AE-010490

DISCONNECTING POINT – TRANSMISSION WIRING HARNESS

Tractors with SG2 Cab

Disconnecting point under platform beneath dash.

A-12-pin connector

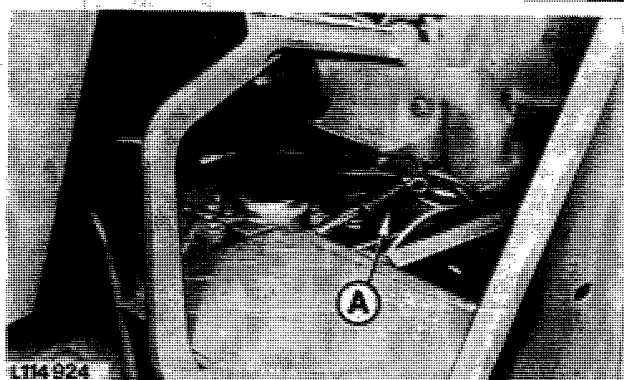


L107066-LB24005AE-010886

Tractors without Cab

Disconnecting point under platform beneath dash.

A-12-pin connector

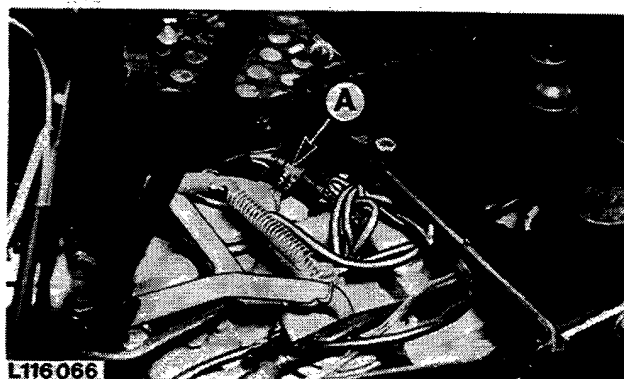


L114924-LB34005AE-010287

Tractors with MC1 Cab

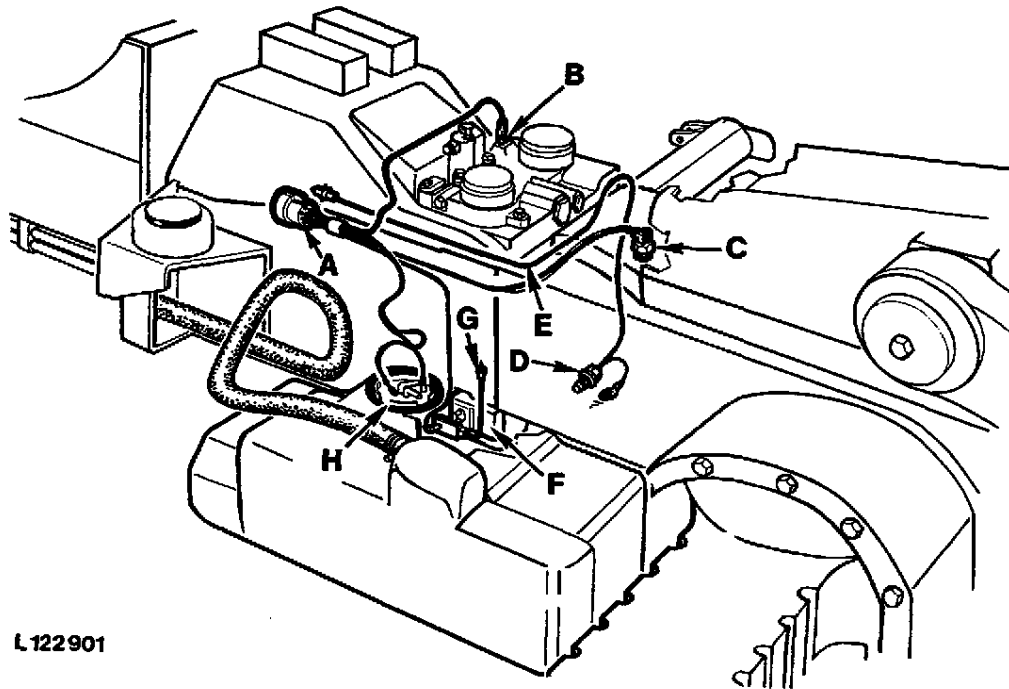
Disconnecting point under platform beneath dash.

A-12-pin connector



L116066-LB34005AE-010287

TRANSMISSION WIRING HARNESS (Tractors With SG2 Cab)



L122901

A-Transmission wiring harness
B-Transmission oil pressure
warning switch
C-Start safety switch

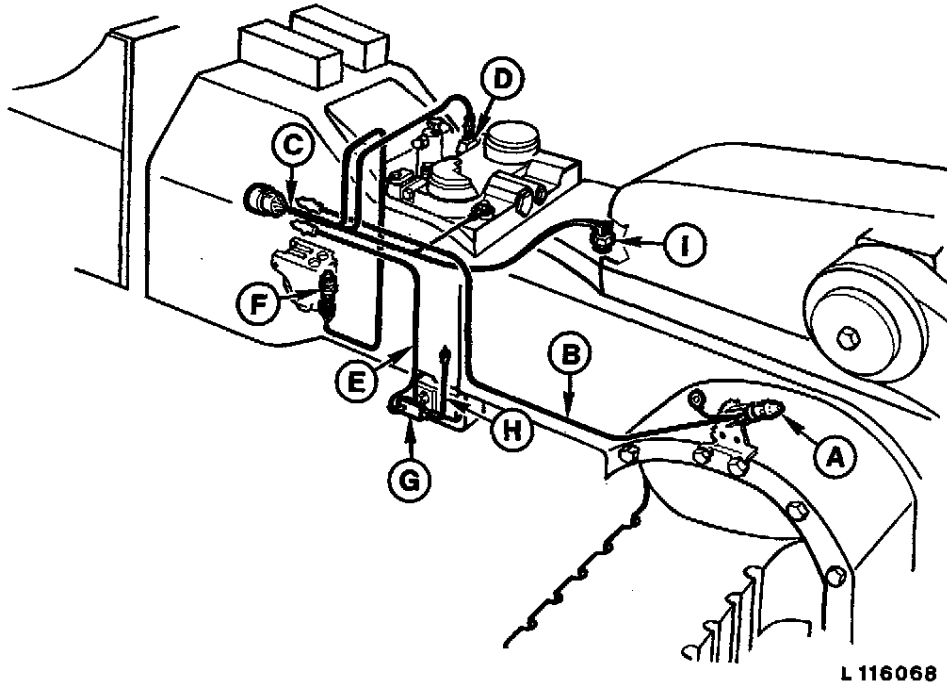
D-Magnetic sending unit for
digital speed-hour meter*
E-Cable*

F-Solenoid (front wheel drive)
G-Ground cable
H-Fuel gauge sending unit

* when equipped

L122901-LB34005AE-010490

TRANSMISSION WIRING HARNESS
(Tractors without Cab or with MC1 Cab)



A-Sending unit for handbrake
indicator light
B-Cable
C-Transmission wiring harness

D-Transmission oil pressure
warning switch
E-Cable
F-Stop light switch

G-Solenoid (front wheel drive)
H-Ground cable
I-Start safety switch

L116068-LB34005AE-010267

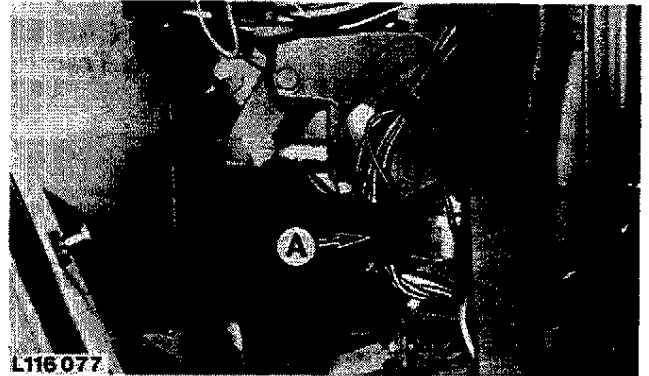
Wiring Harnesses

DISCONNECTING POINT – CAB WIRING HARNESS

On Tractors with SG2 Cab

Disconnecting point behind right-hand dash cover.

A-19-pin plug



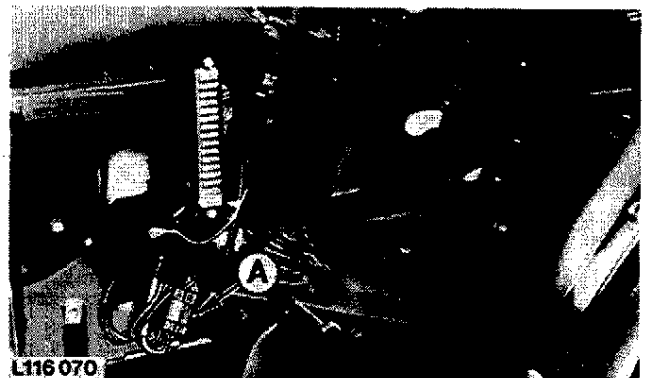
L116077-LB34005AE-010287

DISCONNECTING POINT – CAB WIRING HARNESS

On Tractors with MC1 Cab

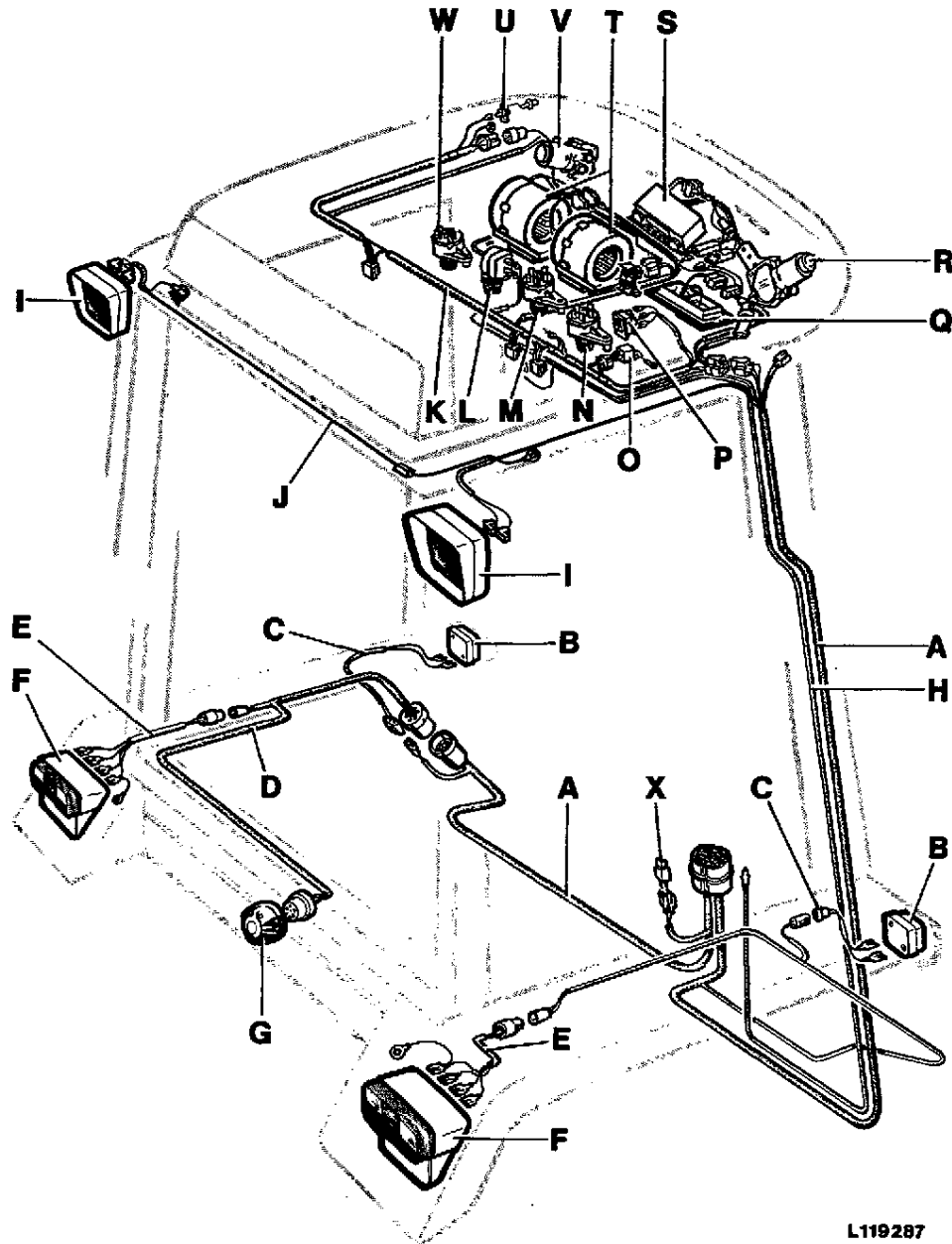
Disconnecting point behind left-hand dash cover.

A-19-pin plug



L116070-LB34005AE-010287

SG2 CAB WIRING HARNESSSES
(Up To Tractor Serial No. 646 946L)



A—Cab wiring harness
B—Turn signal and clearance lights
C—Wiring harness
D—Wiring harness
E—Wiring harness
F—Tail, stop and turn signal lights
G—7-terminal socket
H—Cable

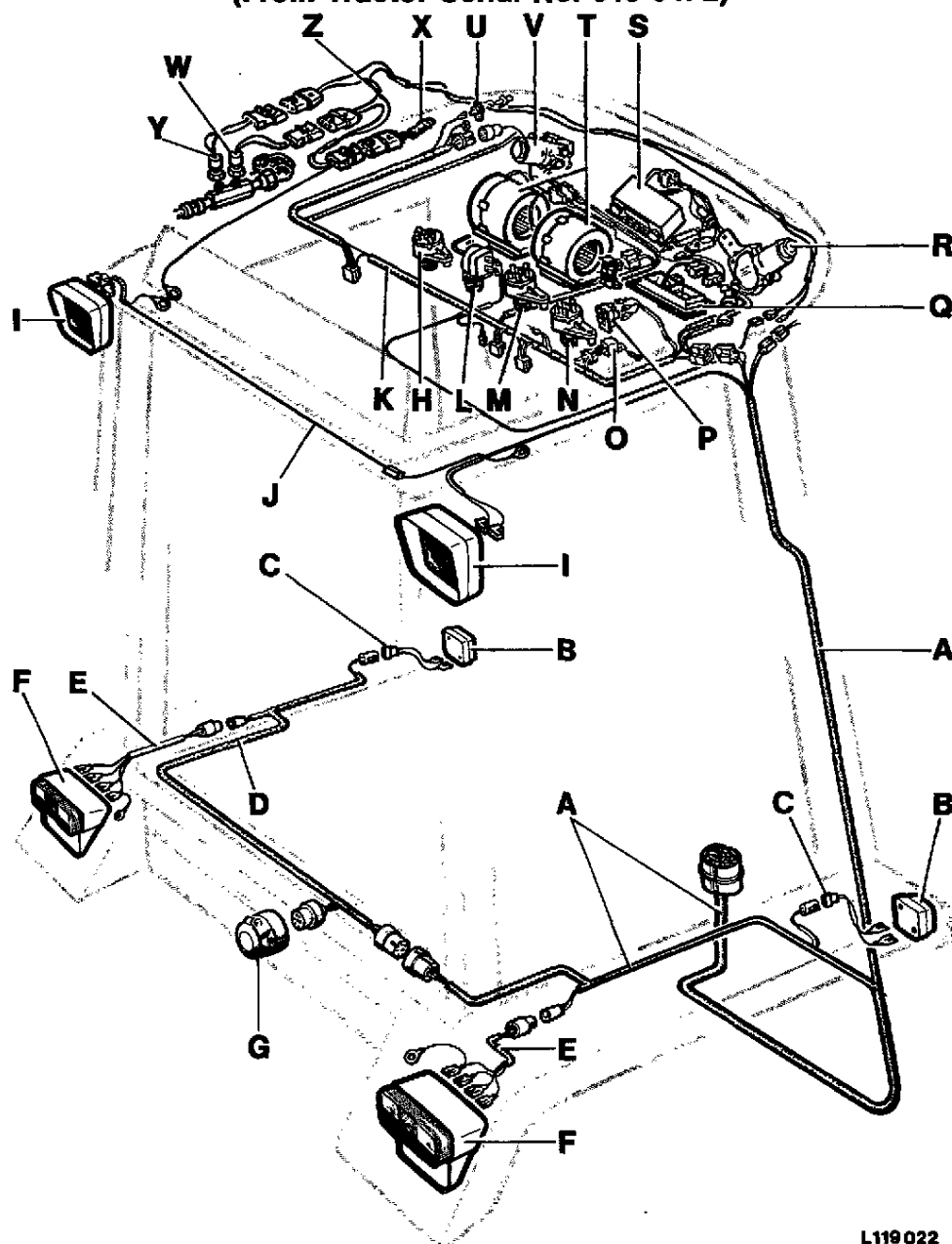
I—Worklight
J—Wiring harness
K—Wiring harness
L—Thermostat switch
M—Fan switch
N—Windshield wiper switch, right-hand
O—Fan relay
P—Windshield washer switch

Q—Cab interior light
R—Windshield wiper, right-hand
S—Radio
T—Fan
U—Door contact switch
V—Windshield wiper, left-hand
W—Switch for windshield wiper, left-hand
X—PTO indicator light
(up to Tractor Serial No. 602 640L)

L119287

L119287-LB24005AE-000488

SG2 CAB WIRING HARNESSSES
(From Tractor Serial No. 646 947L)



L119022

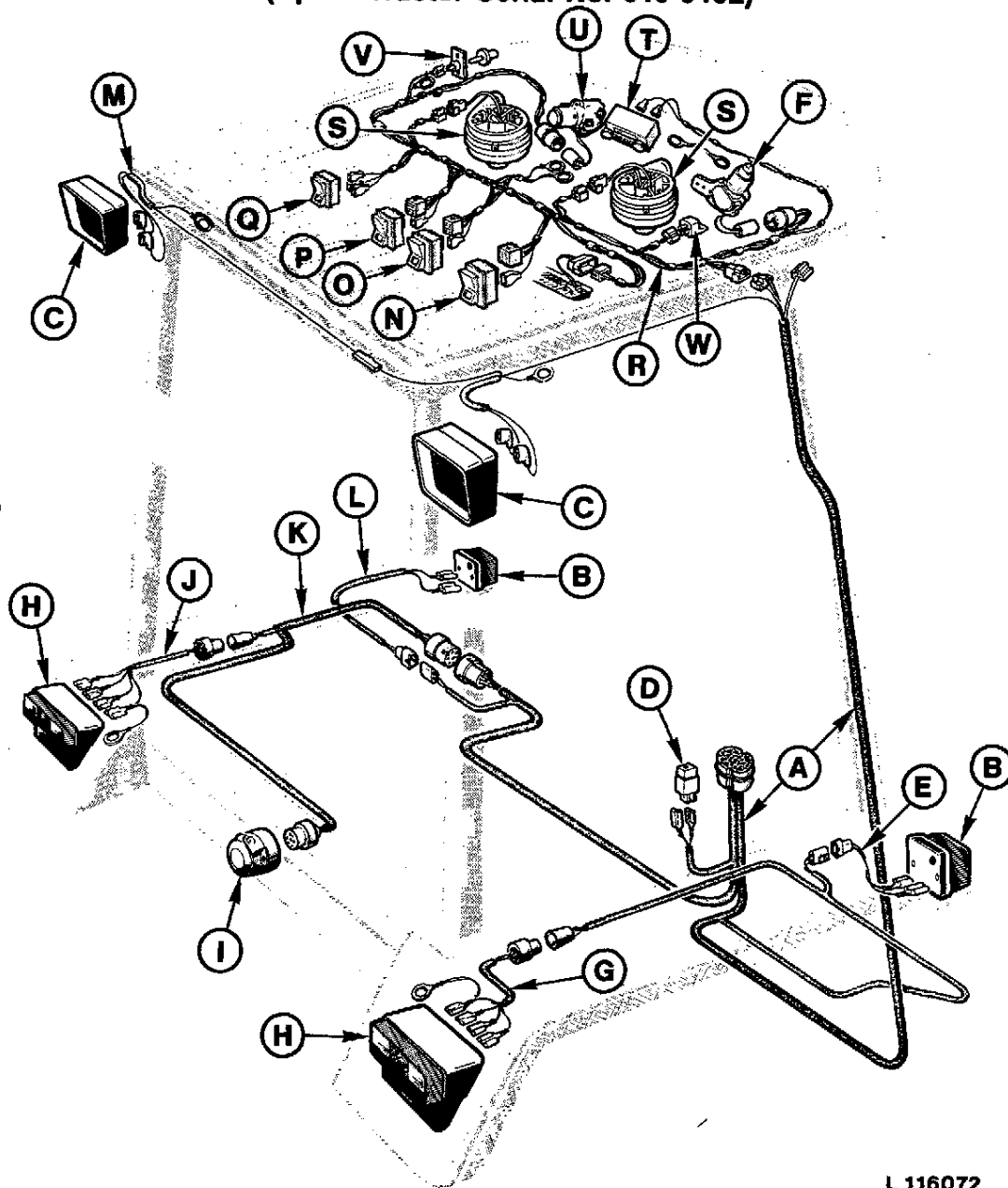
A-Cab wiring harness
B-Turn signal and clearance lights
C-Wiring harness
D-Wiring harness
E-Wiring harness
F-Tail, stop and turn signal lights
G-7-terminal socket
H-Windshield wiper switch, left-hand
I-Worklight

J-Wiring harness
K-Wiring harness
L-Thermostat switch
M-Fan switch
N-Windshield wiper switch, right-hand
O-Fan relay
P-Windshield washer switch
Q-Cab interior light

R-Windshield wiper, right-hand
S-Radio
T-Fan
U-Door contact switch
V-Windshield wiper, left-hand
W-High pressure switch
X-Diode
Y-Low pressure switch
Z-Wiring harness

L119022-LB24005AE-000488

**WIRING HARNESSES – SG2 LOW PROFILE CAB
(Up To Tractor Serial No. 646 946L)**



L 116072

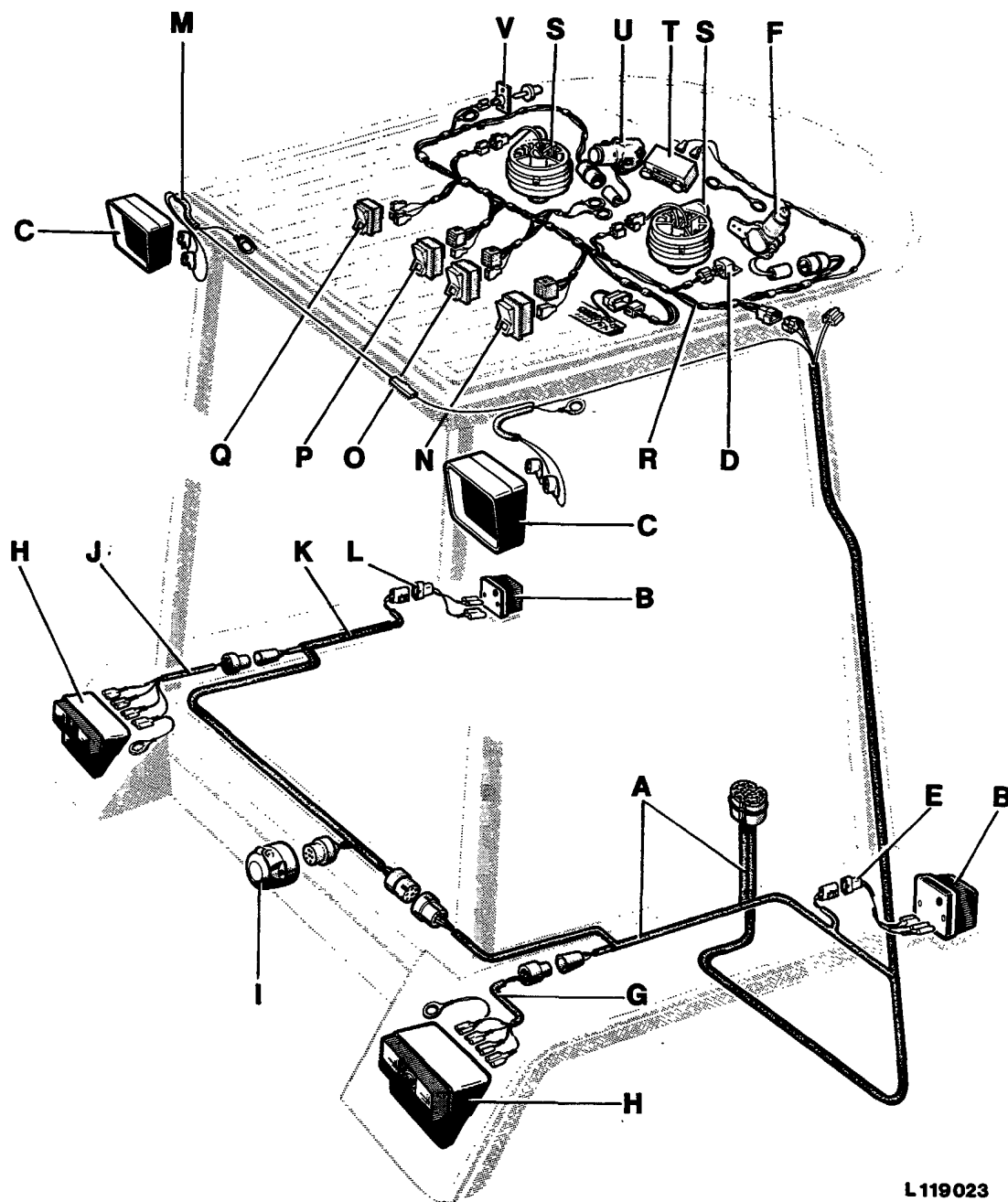
A—Cab wiring harness
B—Turn signal and clearance lights
C—Worklight
D—Hi-lo indicator light
(up to Tractor Serial No. 602 640L)
E—Wiring harness
F—Windshield wiper, right-hand
G—Wiring harness

H—Tail, stop and turn signal lights
I—7-terminal socket
J—Wiring harness
K—Wiring harness
L—Wiring harness
M—Wiring harness
N—Fan switch
O—Windshield wiper switch, r.h.

P—Windshield wiper switch, l.h.
Q—Windshield washer switch
R—Cab roof wiring harness
S—Fan
T—Radio
U—Windshield wiper, l.h.
V—Door contact switch
W—Fan relay

L116072-LB24005AE-000488

**WIRING HARNESSSES – SG2 LOW PROFILE CAB
(From Tractor Serial No. 646 947L)**



L 119023

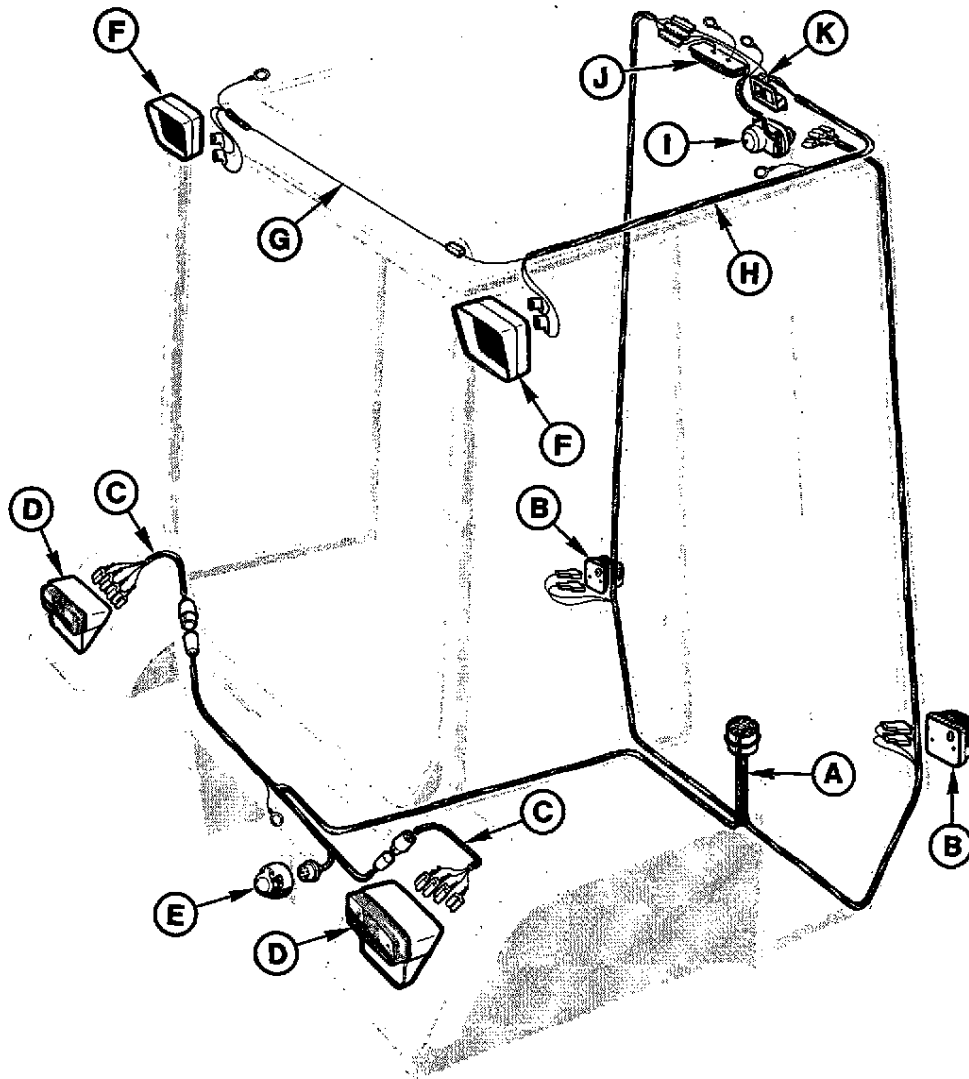
A–Cab wiring harness
B–Turn signal and clearance lights
C–Worklight
D–Fan relay
E–Wiring harness
F–Windshield wiper, right-hand
G–Wiring harness

H–Tail, stop and turn signal lights
I–7-terminal socket
J–Wiring harness
K–Wiring harness
L–Wiring harness
M–Wiring harness
N–Fan switch

O–Windshield wiper switch, r.h.
P–Windshield wiper switch, l.h.
Q–Windshield washer switch
R–Cab roof wiring harness
S–Fan
T–Radio
U–Windshield wiper, l.h.
V–Door contact switch

L119023-LB24005AE-000488

WIRING HARNESSSES - MC1 CAB



L 116073

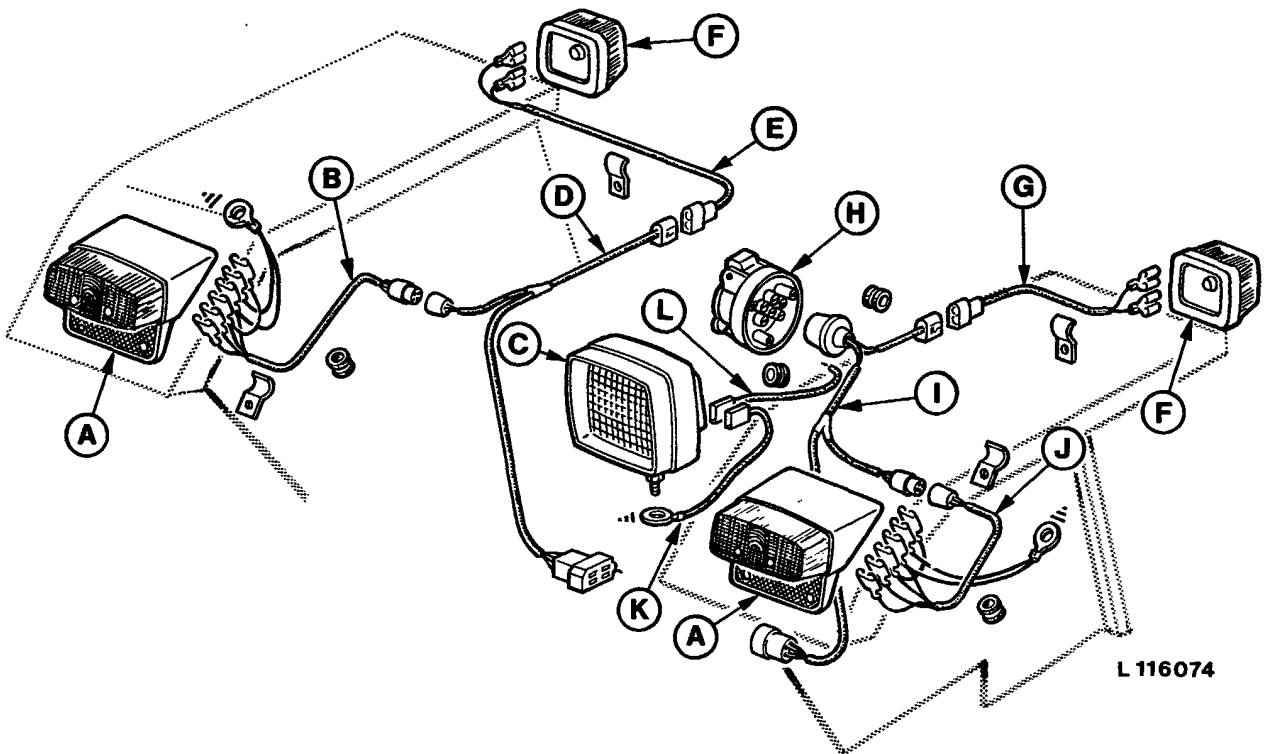
A-Cab wiring harness
B-Turn signal and clearance lights
C-Wiring harness
D-Tail, stop and turn signal lights

E-7-terminal socket
F-Worklight
G-Wiring harness

H-Wiring harness
I-Windshield wiper
J-Cab interior light
K-Switch for rear worklight

L116073-LB34005AE-010287

WIRING HARNESSES - WIDE FENDERS



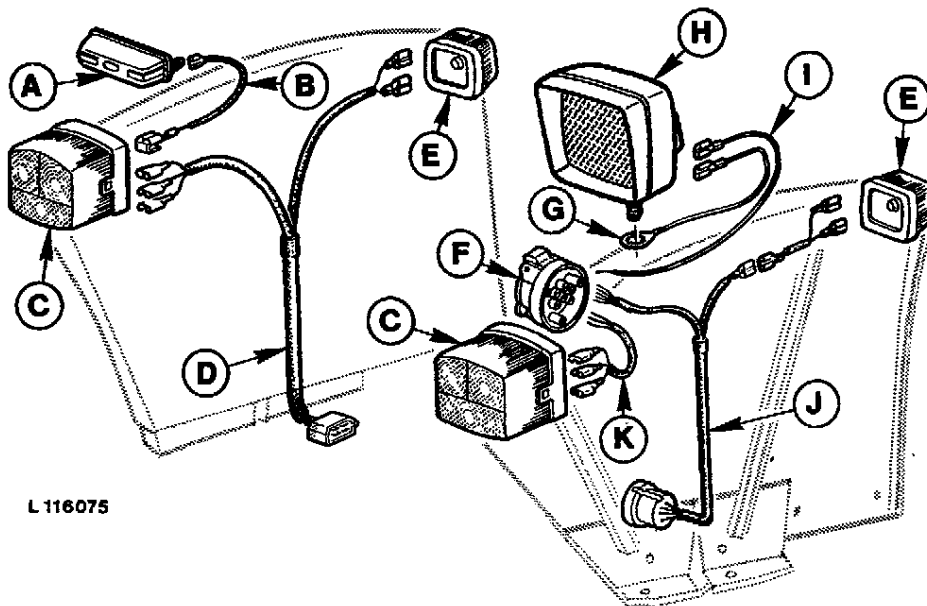
A-Tail, stop and turn signal lights
B-Wiring harness
C-Worklight
D-Wiring harness

E-Wiring harness
F-Turn signal and clearance lights
G-Wiring harness
H-7-terminal socket

I-Wiring harness
J-Wiring harness
K-Ground cable
L-Cable

L116074-LB34005AE-010888

WIRING HARNESSES - SHELL-TYPE FENDERS



L 116075

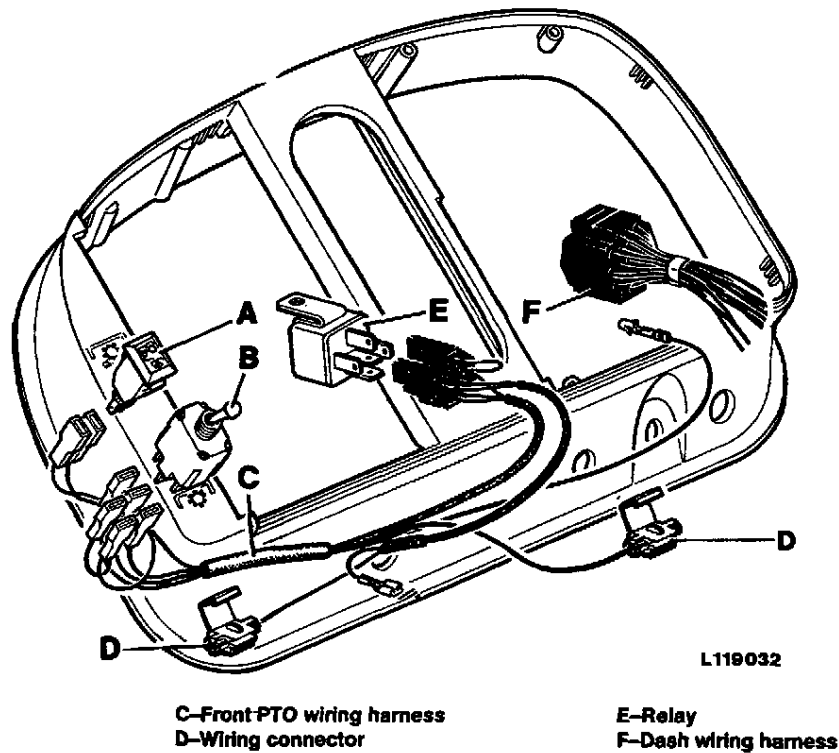
A-Registration plate light
B-Cable
C-Tail, stop and turn signal lights
D-Wiring harness

E-Turn signal and clearance lights
F-7-terminal socket
G-Ground cable

H-Worklight
I-Cable
J-Wiring harness
K-Wiring harness

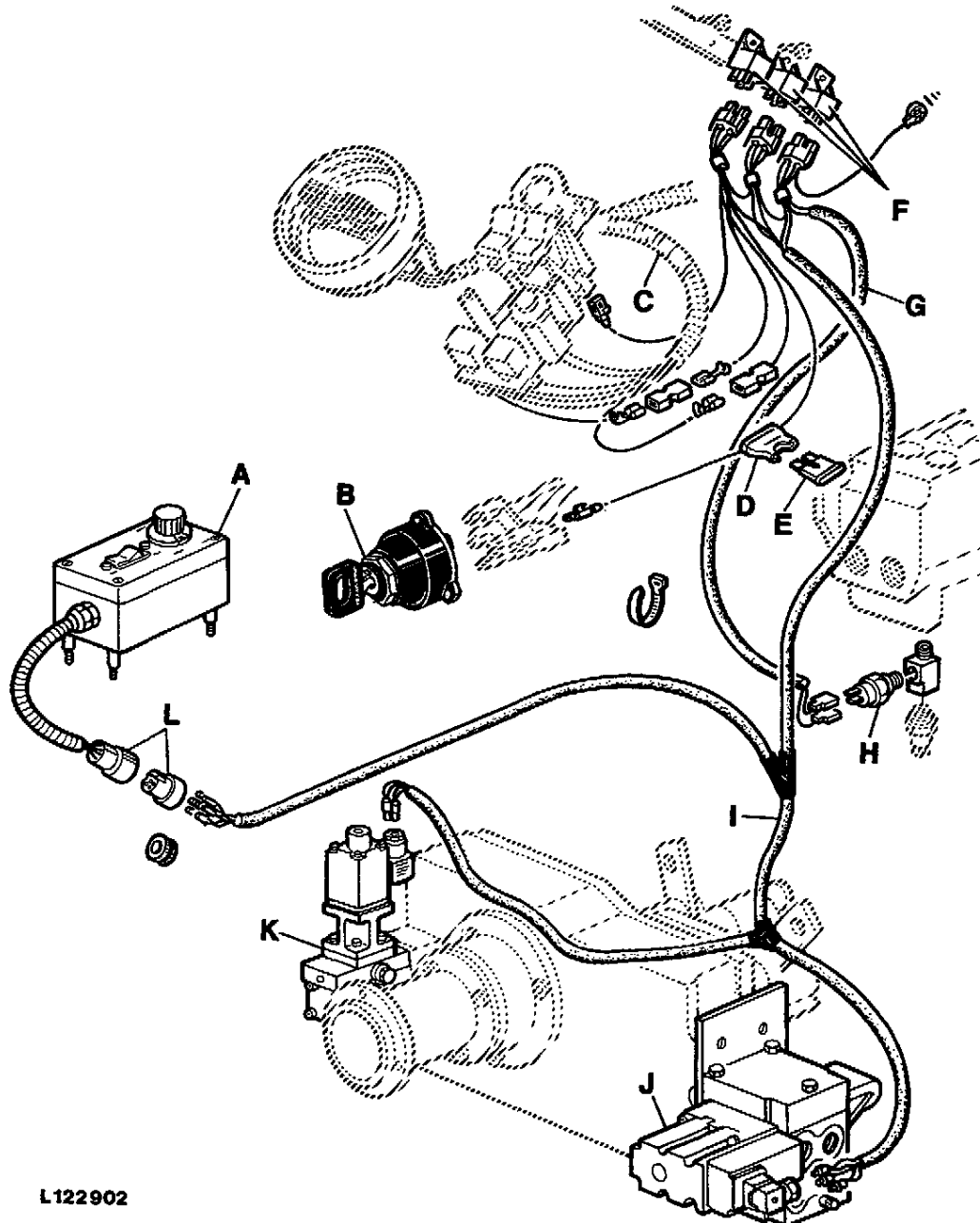
L116075-LB34005AE-010888

WIRING HARNESS – FRONT PTO



L119032-LB24005AE-010488

WIRING HARNESSSES – HYDROSTATIC CREEPER TRANSMISSION (Tractors with MC1 Cab)



L122902

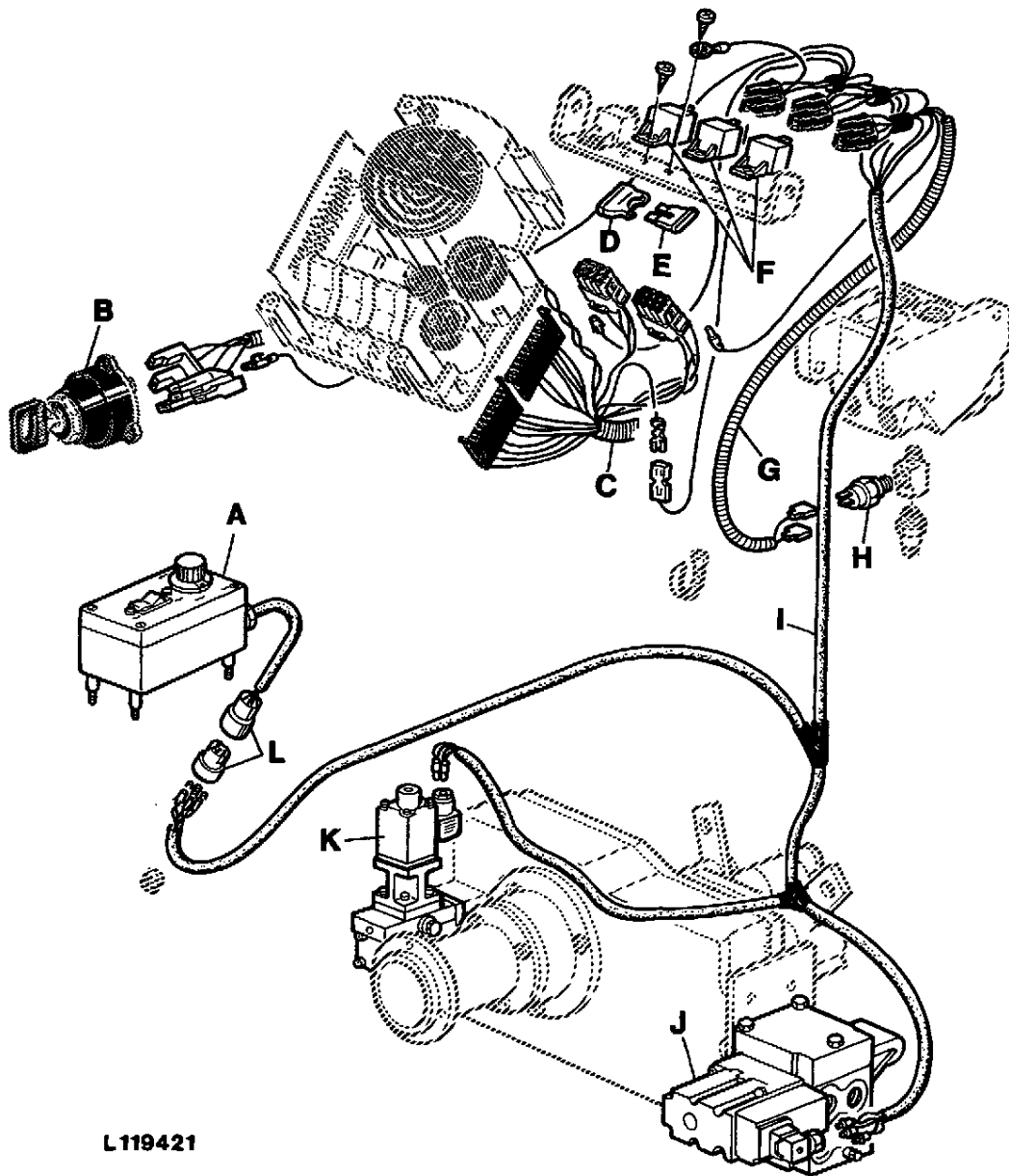
A—Control unit
B—Main switch
C—Dash wiring harness
D—Fuse holder
E—Fuse (5 ampère)

F—Relay for hydrostatic creeper transmission
G—Wiring harness for brake pressure switch
H—Brake pressure switch

I—Wiring harness for hydrostatic creeper transmission
J—Proportional flow control valve
K—Switching valve
L—7-pin connector

L122902-LB34005AE-010490

WIRING HARNESSSES – HYDROSTATIC CREEPER TRANSMISSION (Tractors with SG2 Cab)



L119421

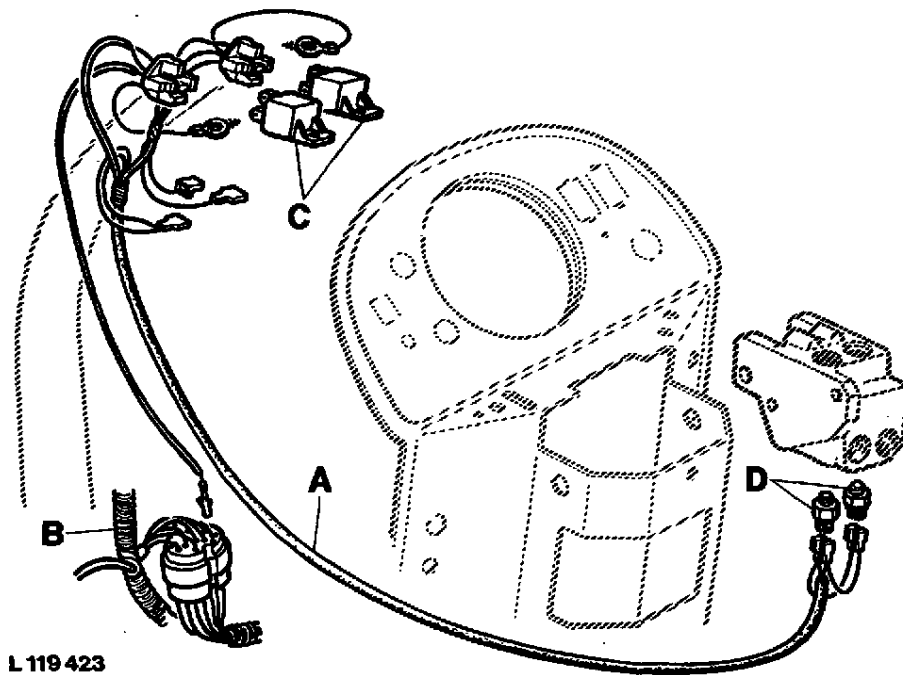
A—Control unit
B—Main switch
C—Dash wiring harness
D—Fuse holder
E—Fuse (5 ampère)

F—Relay for hydrostatic creeper transmission
G—Wiring harness for brake pressure switch
H—Brake pressure switch

I—Wiring harness for hydrostatic creeper transmission
J—Proportional flow control valve
K—Switching valve
L—7-pin connector

L119421-LB34005AE-010888

**WIRING HARNESS – AUTOMATIC FOUR-WHEEL BRAKE
(Tractors With MC1 Cab)**



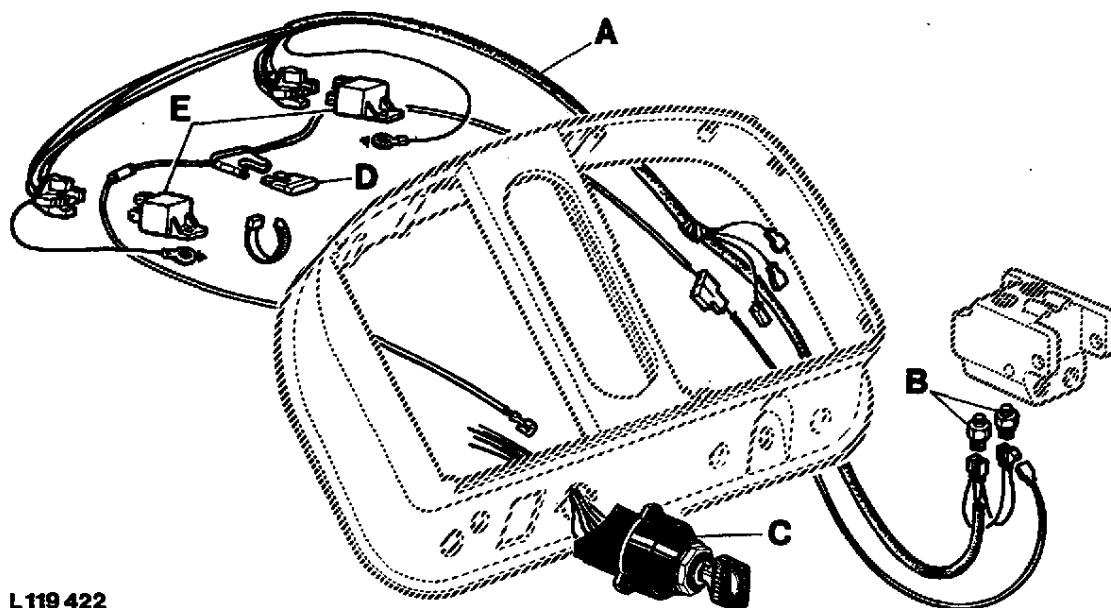
A—Wiring harness for automatic
four-wheel brake

B—Dash panel wiring harness

C—Relay
D—Brake pressure switch

L119423-LB34005AE-010888

WIRING HARNESS – AUTOMATIC FOUR-WHEEL BRAKE
(Tractors With SG2 Cab up to Ser. No. 697 300L)



L119 422

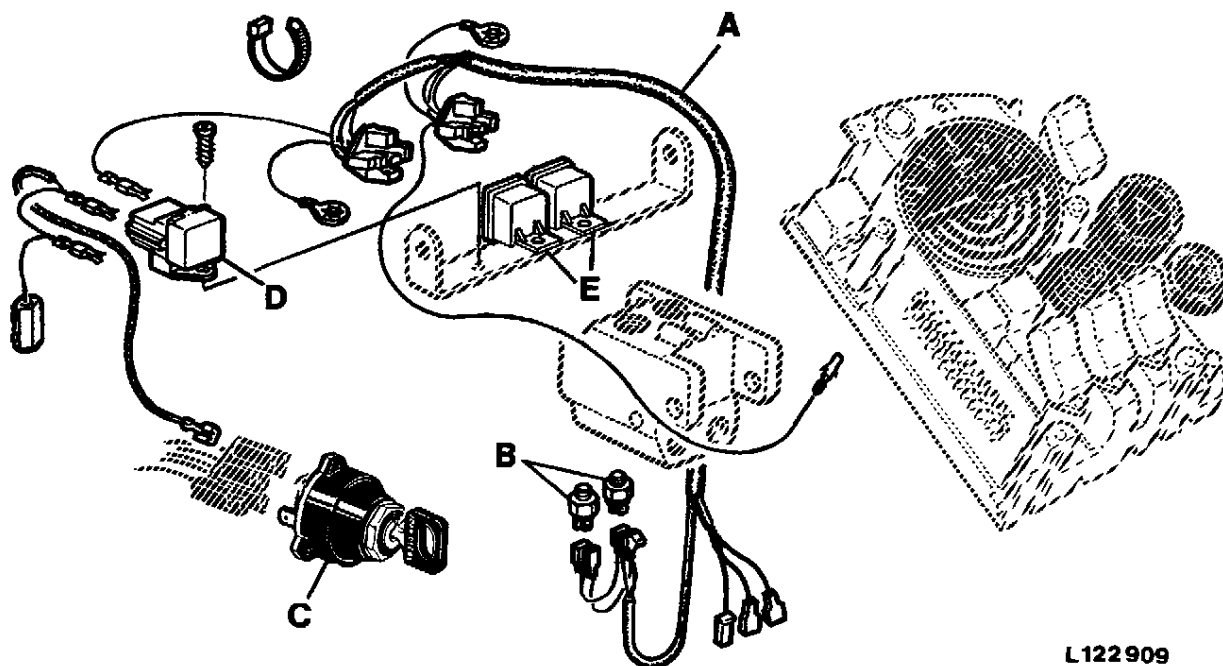
A—Wiring harness for automatic
four-wheel brake

B—Brake pressure switch
C—Main switch

D—15 ampère fuse
E—Relay

L119422-LB34005AE-010490

WIRING HARNESS - AUTOMATIC FOUR-WHEEL BRAKE
(Tractors With SG2 Cab from Ser. No. 697 301L)



L122 909

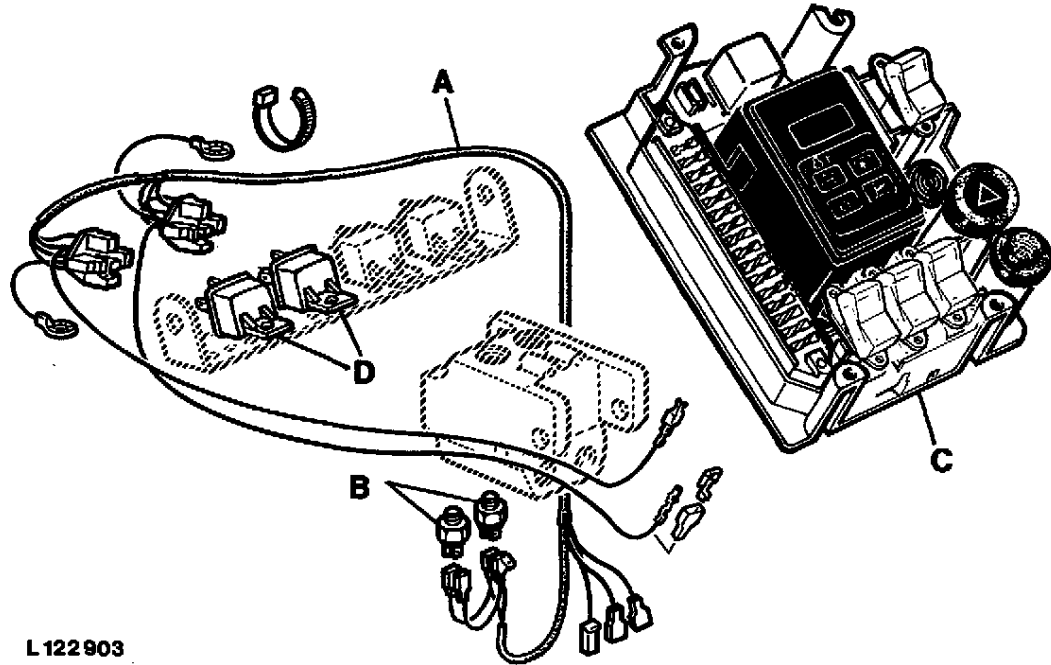
A-Wiring harness for automatic four-wheel brake

B-Brake pressure switch
C-Main switch

D-Fuse box
E-Relay

L122909-LE34005AE-010490

**WIRING HARNESS – AUTOMATIC FOUR-WHEEL BRAKE
(Tractors With Digital Speed-Hour Meter)**



A—Wiring harness for automatic
four-wheel brake

B—Brake pressure switch
C—Dash panel, right hand

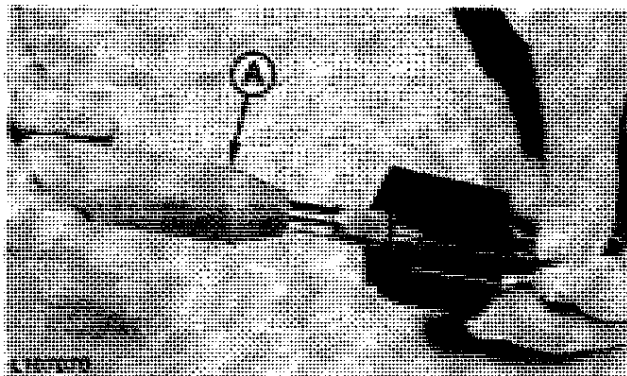
D—Relay

L122903-LB34005AE-010490

**REMOVING A SNAP CONNECTOR –
3.5 mm (0.14 in.) DIAMETER**

A-KML10019-3*

* Part of repair kit KML10019

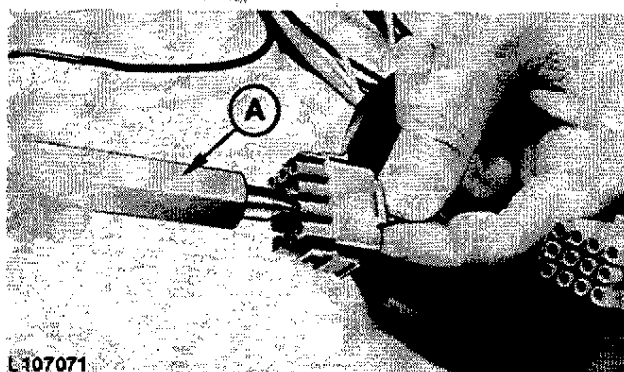


L107070-LA74005AE-091184

**REMOVING A SNAP CONNECTOR –
2 mm (0.08 in.) DIAMETER**

A-KML10019-2*

* Part of repair kit KML10019



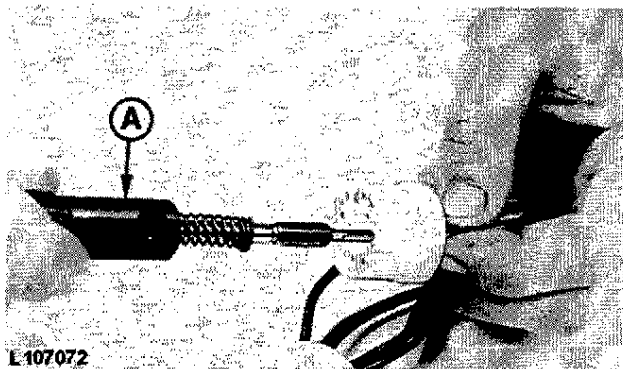
L107071

L107071-LA74005AE-091184

**REMOVING A SNAP CONNECTOR –
1.6 mm (0.06 in.) DIAMETER**

A-KML10019-4*

* Part of repair kit KML10019



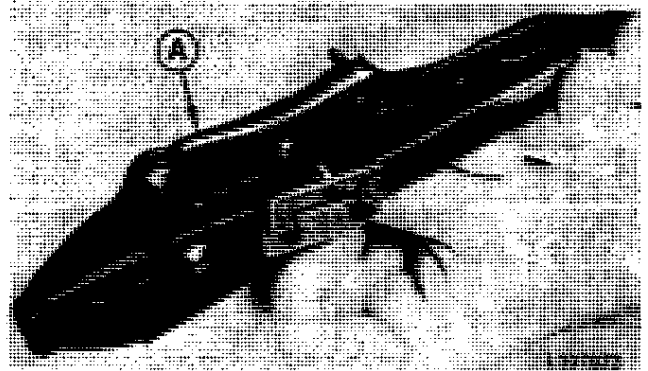
L107072

L107072-LA74005AE-091184

STRIPPING CABLE ENDS

A-KML10019-1*

* Part of repair kit KML10019



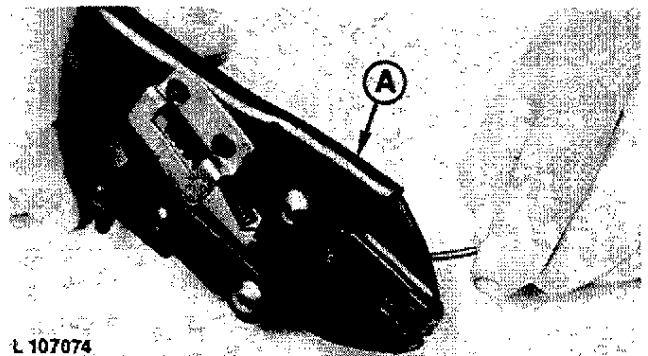
L107073-LA74005AE-091184

CRIMPING SNAP CONNECTORS

A-KML10019-1*

NOTE: Place snap connectors in appropriate recess of crimping pliers

* Part of repair kit KML10019



L 107074

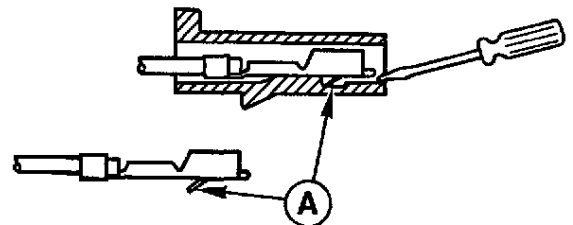
L107074-LA74005AE-001184

REPLACING INDIVIDUAL SNAP CONNECTORS

Using a small screwdriver, press locking tang inward and pull off snap connector.

Place locking tang in original position before reinserting snap connector.

A-Locking tang



L114 830

L114830-LB24005AE-010886

Group 10 CONTROLS AND INSTRUMENTS (WITH SG2 CAB)

SPECIAL TOOLS

A—Installing start safety switch

JT05791

A

L119 019

L119019-LB24010AE-010488

SPECIFICATIONS

TRACTORS WITH ANALOG SPEED-HOUR METER

20 ampere fuses for:

Windshield wipers
Cab blower and heater fan (terminal 86)
Hi-Lo indicator light
Front PTO
Fuel pre-heater

15 ampere fuses for:

Hazard warning light switch
Windshield washer system
Cab interior light
Air conditioning system
Stop light, left-hand
Stop light, right-hand
Socket for trailer lighting (stop lights)
Cab blower and heater fan (terminal 30)
Radio (2 amps.)
Automatic four-wheel brake (terminal 86)

5 ampere fuse for:

Hydrostatic creeper transmission

0.5 ampere fuse for:

Start safety switch
Hydrostatic creeper transmission

10 ampere fuses for:

All other circuits

BEDKONTR-LB34010AE-010480

SPECIFICATIONS (Continued)

TRACTORS WITH DIGITAL SPEED-HOUR METER

25 ampere fuses for:

Cab blower and heater fan (terminal 30)
Cab interior light
Radio
Air conditioning system
Windshield washer system

0.5 ampere fuse for:

Start safety switch

15 ampere fuses for:

Four wheel brake
Stop lights
Turn signal lights
Horn

20 ampere fuse for:

Work light

10 ampere fuses for:

All other circuits

BEDKONTR-LB34010BE-010490

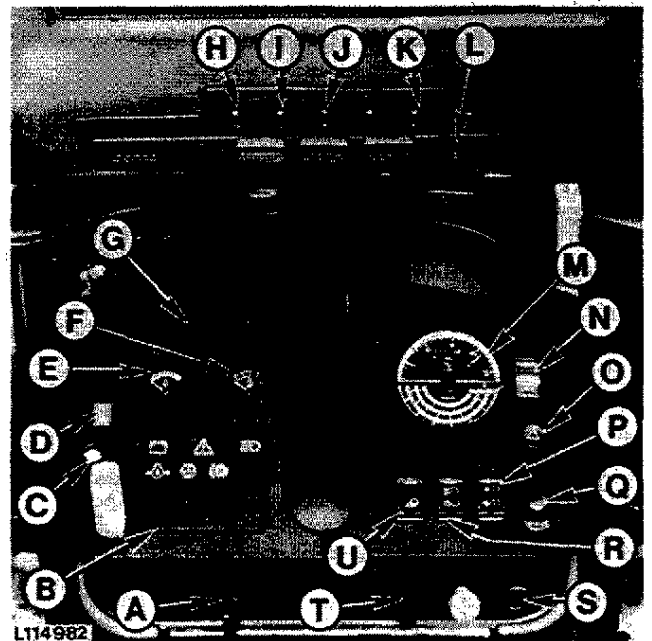
TORQUES FOR HARDWARE

Magnetic sending unit to
front wheel drive clutch housing 12 to 15 Nm (9 to 11 ft-lb)

BEDKONTR-LB34010CG-010490

DASH PANEL, CONTROLS AND INSTRUMENTS

- A—Key switch
- B—Indicator light panel
- C—Front PTO switch
- D—Front PTO indicator light
- E—Coolant temperature gauge
- F—Fuel gauge
- G—Turn-signal light switch
- H—Switch for windshield wiper, left-hand
- I—Thermal switch for air conditioning system
- J—Switch for cab blower and heater fan
- K—Switch for windshield wiper, right-hand
- L—Switch for windshield washer system
- M—Engine speed meter and hour meter
- N—Switch for front worklight or switch for headlight mounted on cab roof
- O—Switch for hazard warning lights
- P—Tumbler switch for front wheel drive
- Q—Horn button
- R—Switch for dimmed and full-beam headlights
- S—Cigarette lighter or handlamp socket
- T—Starter switch
- U—Switch for rear worklight

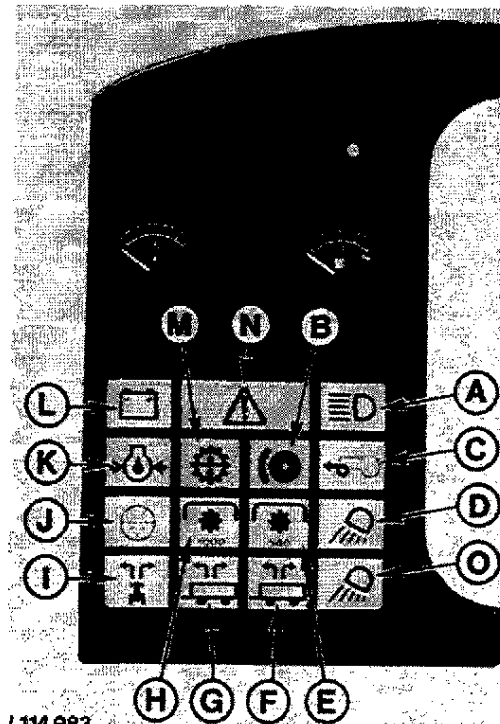


L114982

L114982-LB24010AE-010886

INDICATOR LIGHT PANEL

- A—Headlights, full-beam indicator light
- B—Handbrake indicator light
- C—Front wheel drive indicator light
- D—Worklight indicator light (for front worklight mounted on cab roof)
- E—PTO (speed) indicator light (540 rpm)
- F—Trailer turn-signal indicator light
- G—Trailer turn-signal indicator light
- H—PTO (speed) indicator light (1000 rpm)
- I—Turn-signal indicator light
- J—Air cleaner restriction indicator light
- K—Engine oil pressure indicator light
- L—Alternator indicator light
- M—Transmission oil pressure indicator light
- N—Warning light
- O—Worklight indicator light (for rear worklight mounted on cab roof)



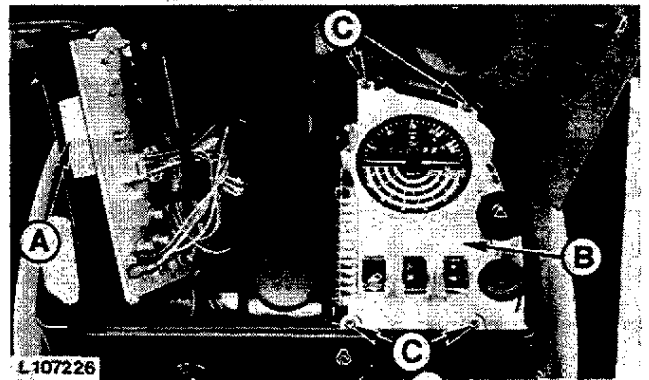
L114 983

L114983-LB24010AE-010896

REMOVING LEFT AND RIGHT-HAND DASH PANEL HOUSINGS

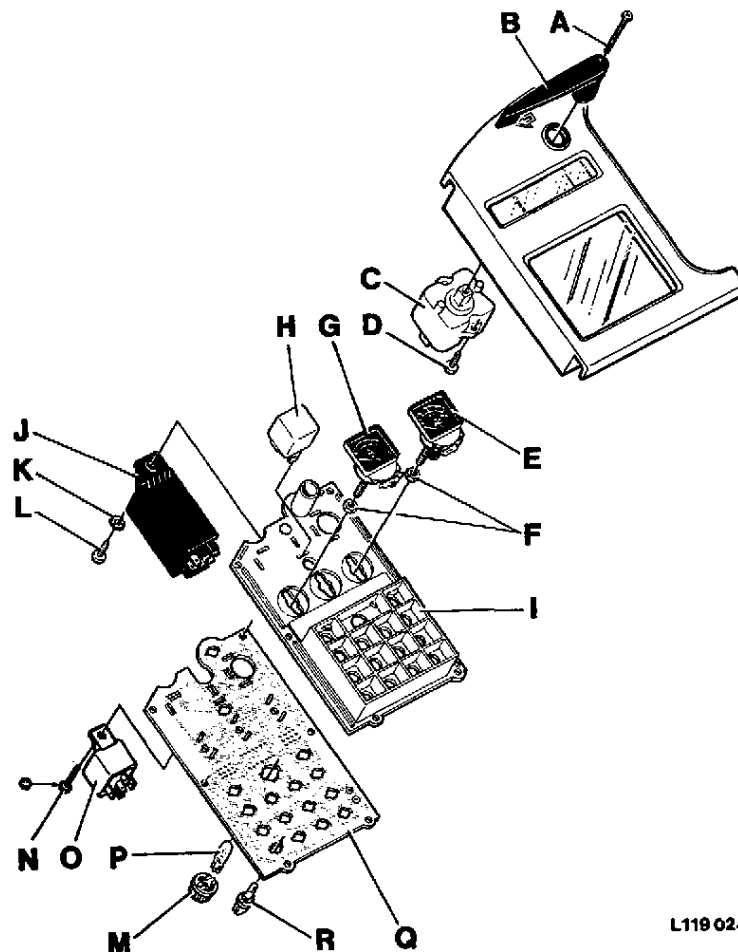
Remove left-hand dash panel housing (A) from dash, disconnect plugs and ground cable.

Remove Phillips screws (C) and pull out right-hand dash panel housing (B). Disconnect all plugs from rear.



L107226-LA74010AE-091184

LEFT-HAND DASH PANEL, EXPLODED VIEW



L119 024

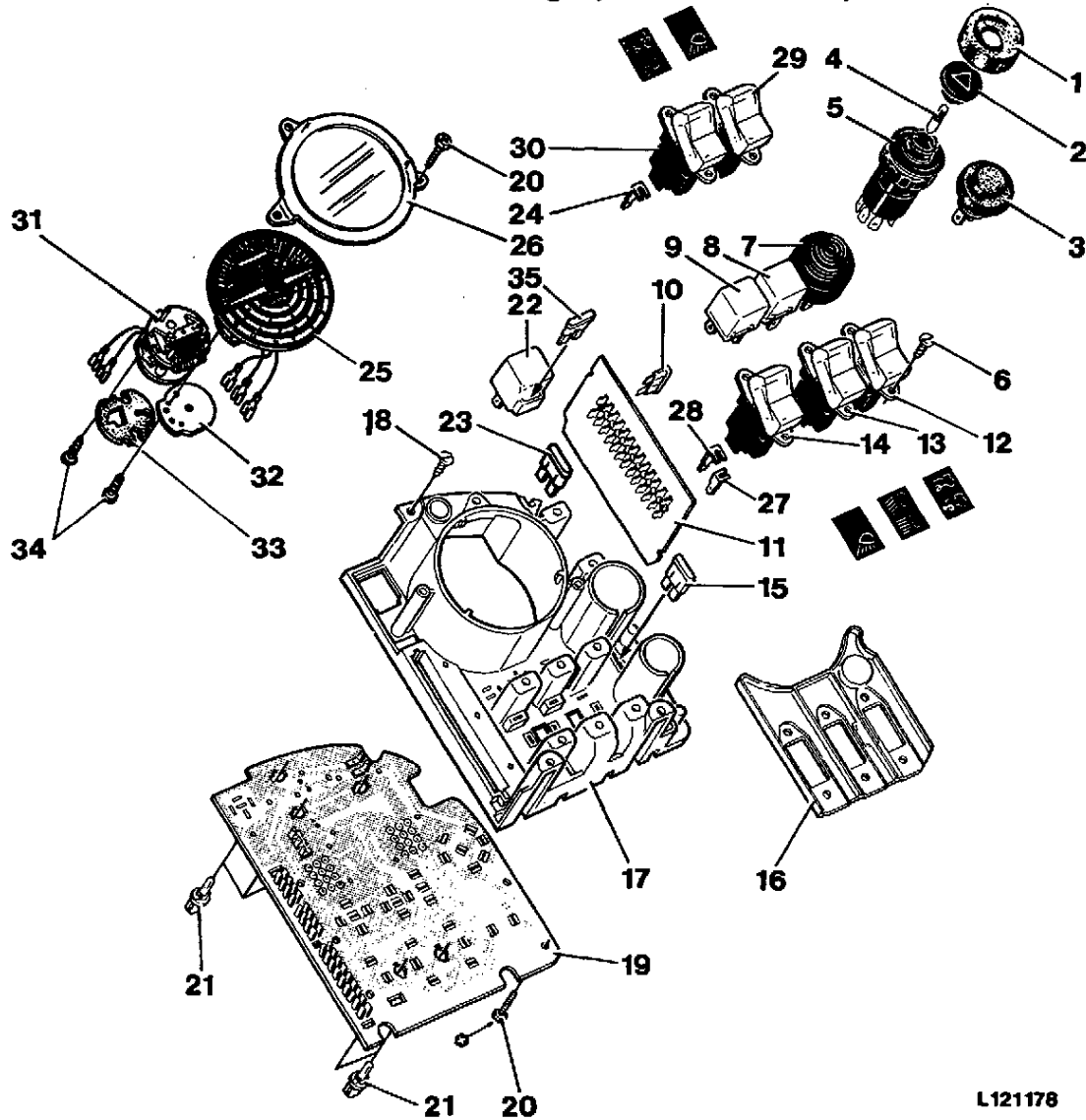
A-Phillips screw
B-Turn-signal lever
C-Turn-signal switch
D-Phillips screw (2 used)
E-Fuel gauge
F-Hex. nuts
G-Coolant temperature gauge

H-Time delay switch (transmission oil pressure)
I-Housing
J-Flasher
K-Toothed lock washer
L-Phillips screw
M-Retainer

N-Phillips screw (6 used)
O-Relay for front PTO
P-Bulb (5 W)
Q-Printed circuit board
R-Bulb with holder (2 W, 16 used)

L119024-LB24010AE-010488

RIGHT-HAND DASH PANEL, EXPLODED VIEW (Tractors with Analog Speed-Hour Meter)



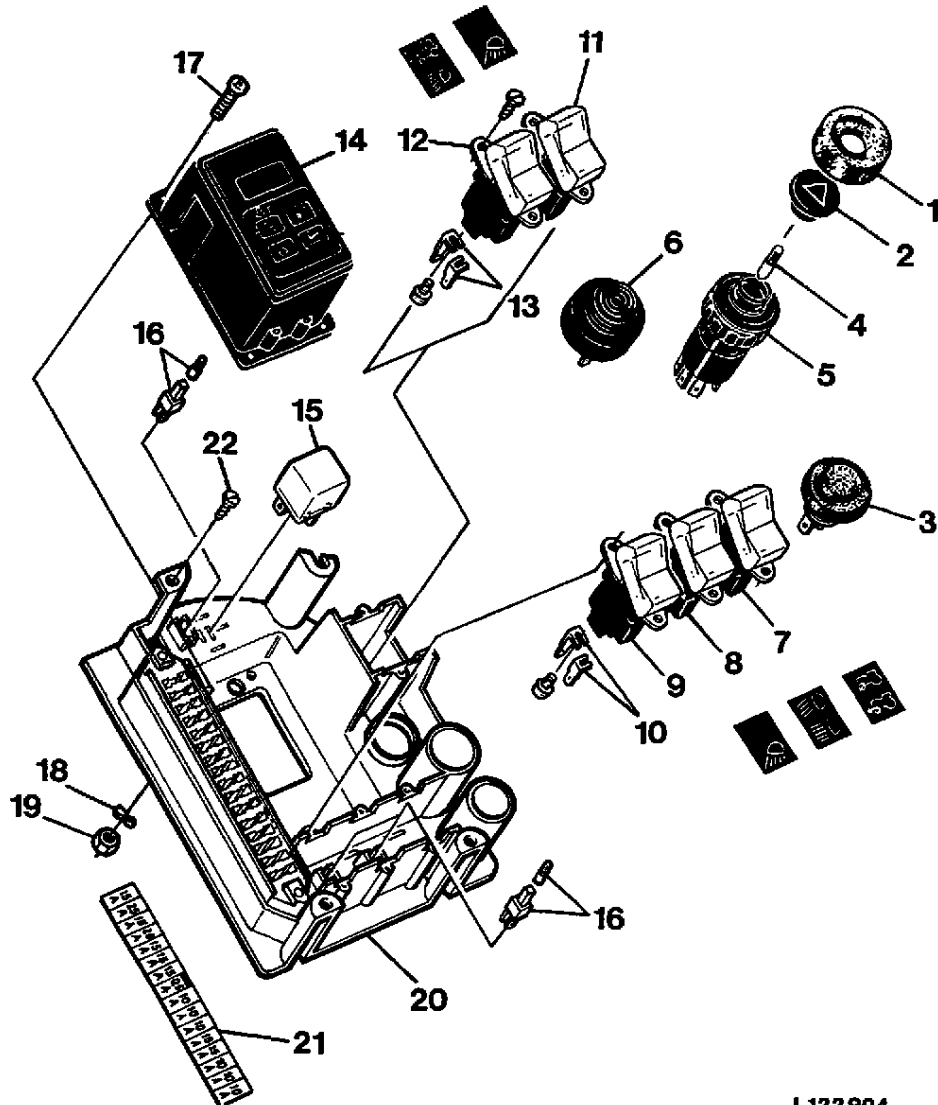
L121178

- 1-Rubber seal
- 2-Warning light cap
- 3-Horn button
- 4-Bulb (2 W)
- 5-Hazard warning light switch
- 6-Phillips screw (10 used)
- 7-Acoustic warning signal
- 8-Relay for handbrake indicator light
- 9-Starter relay
- 10-Fuse (12 used)
- 11-Fuse printed circuit board
- 12-Tumbler switch for front wheel drive

- 13-Full-beam and dimmed headlight switch
- 14-Worklight switch, rear
- 15-Fuse (emergency lighting)
- 16-Cover
- 17-Housing
- 18-Phillips screw
- 19-Printed circuit board
- 20-Phillips screws (9 used)
- 21-Bulb with holder (2 W, 5 used)
- 22-Relay for rear worklight
- 23-Fuse (start safety switch)
- 24-Cable plug (6 used)

- 25-Engine speed meter
- 26-Plastic disk
- 27-Cable plug (3 used)
- 28-Cable plug (5 used)
- 29-Worklight switch, front
- 30-Switch for headlight mounted on cab roof
- 31-Hour meter
- 32-Plastic insulation
- 33-Foam damping pad
- 34-Cylinder headed screws
- 35-Fuse-relay for rear work light

RIGHT-HAND DASH PANEL, EXPLODED VIEW (Tractors with Digital Speed-Hour Meter)



L122 904

- 1-Rubber seal
- 2-Warning light cap
- 3-Horn button
- 4-Bulb (2 W)
- 5-Hazard warning light switch
- 6-Acoustic warning signal
- 7-Tumbler switch for front wheel drive
- 8-Full-beam and dimmed headlight switch

- 9-Worklight switch, rear
- 10-Cable plug
- 11-Worklight switch
- 12-Switch for headlight mounted on cab roof
- 13-Cable plug
- 14-Digital speed-hour meter

- 15-Relay for worklight
- 16-Bulb with holder (1.2 W)
- 17-Phillips screw (4 used)
- 18-Spring washer (4 used)
- 19-Hex. nut (4 used)
- 20-Housing
- 21-Decal
- 22-Phillips screw (4 used)

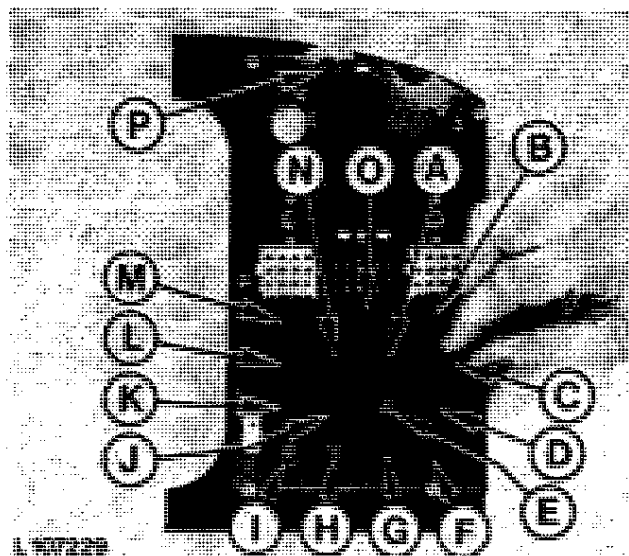
L122904-LB34010AE-010490

REPLACING BULBS

Remove bulb holder with bulb by turning counter-clockwise.

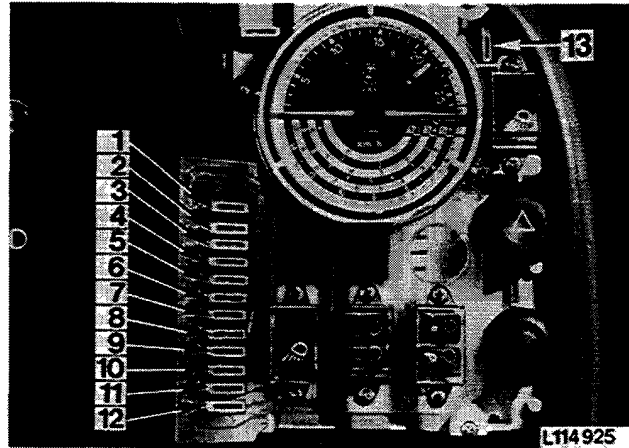
NOTE: In warning light (O), bulb holder and bulb are available as spare parts. In all other lights, bulb and bulb holder are available as an assembly only.

- A—Handbrake indicator light
- B—Alternator indicator light
- C—Engine oil pressure indicator light
- D—Air cleaner restriction indicator light
- E—PTO indicator light (1000 rpm)
- F—Turn-signal indicator light
- G—Trailer turn-signal indicator light
- H—Trailer turn-signal indicator light
- I—Worklight indicator light (mounted on rear of cab roof)
- J—PTO indicator light (540 rpm)
- K—Worklight indicator light (mounted on front of cab roof)
- L—Front wheel drive indicator light
- M—Headlight full-beam indicator light
- N—Transmission oil pressure indicator light
- O—Warning light
- P—Turn-signal indicator light, left-hand



L107229-LB24010AE-010886

FUSES (Tractors with Analog Speed-Hour Meter)



1-Hazard warning light switch (terminal 30)

2-Relay for cab heater and blower fan (terminal 30), cab interior light, radio, air conditioning system, windshield washer system, stop lights* and socket for trailer lighting (stop lights, terminal 6/54)

3-Same parts as for fuse 2

4-Headlights – dimmed

5-Headlights – full beam and full beam indicator light

6-Instrument lighting, parking light and worklight

7-Tail light, r.h., clearance light, l.h. and socket for trailer lighting

8-Tail light, l.h., clearance light, r.h. registration plate light, shift console lighting, windshield washer switch and socket for trailer lighting (terminal 7/58 L)

9-Front PTO

10-Control unit, fuel gauge, coolant temperature gauge, front wheel drive switch, front wheel drive indicator light and stop lights**

11-Horn, hazard warning light switch (terminal 15), engine speed meter, turn signal lights, warning light and socket for handlamp or cigarette lighter

12-Windshield wiper, Hi-Lo shift unit indicator light***, relay for cab ventilation and heater fan (terminal 86)****

13-Start safety switch and hydrostatic creeper transmission

Fuses 1, 2, 3 are 15 ampere fuses.

Fuse 12 is a 20 amp. fuse and the start safety switch is protected with a 0.5 ampere fuse.

The radio has an additional 2 ampere fuse and the hydrostatic creeper transmission an additional 5 ampere fuse. The automatic four wheel brake has a 15 ampere fuse and the fuel preheater a 20 ampere fuse.

The remaining circuits are protected with 10 ampere fuses.

* Up to tractor serial no. 649 055L

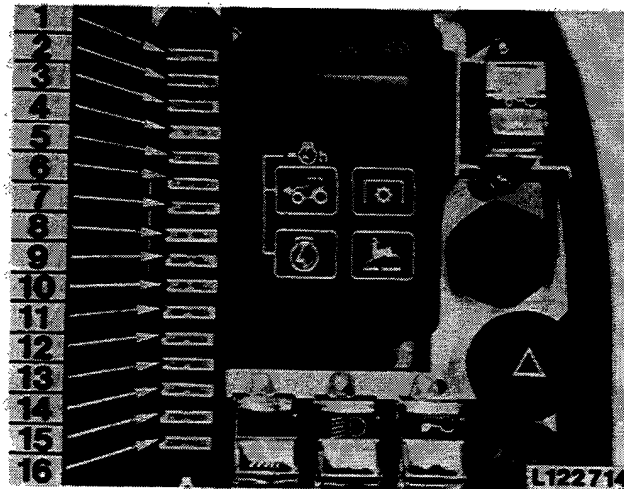
** From tractor serial no. 649 056L

*** Up to tractor serial no. 602 640L

**** With SG2 low profile cab

L114925-LB34010AE-010490

FUSES (Tractors with Digital Speed-Hour Meter)



1-Starter (terminal 50) – 15 ampere

2-Relay for cab heater and blower fan (terminal 30), cab interior light, radio, air conditioning system, windshield washer system – 25 ampere

3-Hazard warning light switch (terminal 30) – 15 ampere

4-Relay for work light – 20 ampere

5-Headlights – dimmed and full beam (terminal 56) – 15 ampere

6-Headlights – dimmed (terminal 56b) – 15 ampere

7-Headlights – full beam and full beam indicator light (terminal 56a) – 15 ampere

8-Start safety switch – 0.5 ampere

9-Relay for front work light (terminal 86), instrument lighting left hand – 10 ampere

10-Tail light, right hand, clearance light, left hand and socket for trailer lighting (terminal 5/58R) – 10 ampere

11-Tail light, left hand, clearance light, right hand, registration plate light, and socket for trailer lighting (terminal 7/58L) – 10 ampere

12-Relay for four wheel brake (terminal 87) and stop lights – 15 ampere

13-Turn signal lights and horn – 15 ampere

14-Front PTO – 10 ampere

15-Windshield wiper and relay for cab heater and blower fan (terminal 86) – 10 ampere

16-Digital speed-hour meter and socket for hand-lamp or cigarette lighter – 10 ampere

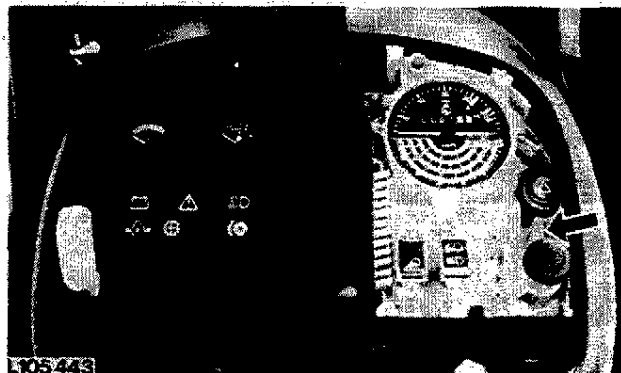
The radio (if equipped) has an additional 2 ampere fuse.

L122714-LB34010AE-010490

FUSE FOR EMERGENCY LIGHTING (Tractors with Analog Speed-Hour Meter)

This protects the following parts after removal of the fuse circuit board and with lights switched on:

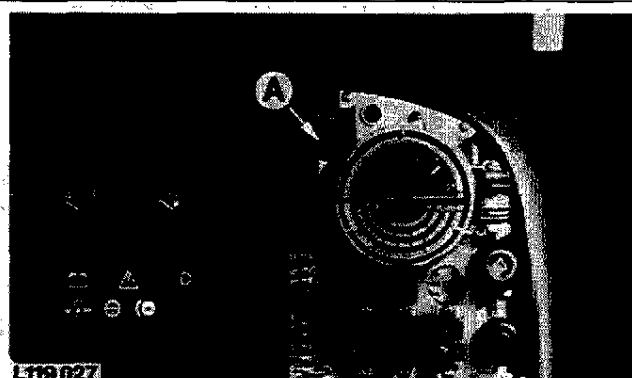
Cab interior light, shift console light, left-hand tail light and right-hand clearance light.



L105443-LB34010AE-010490

FUSE FOR WORKLIGHT RELAY (Tractors with Analog Speed-Hour Meter)

A-20 ampère fuse



L119027-LB34010AE-010490

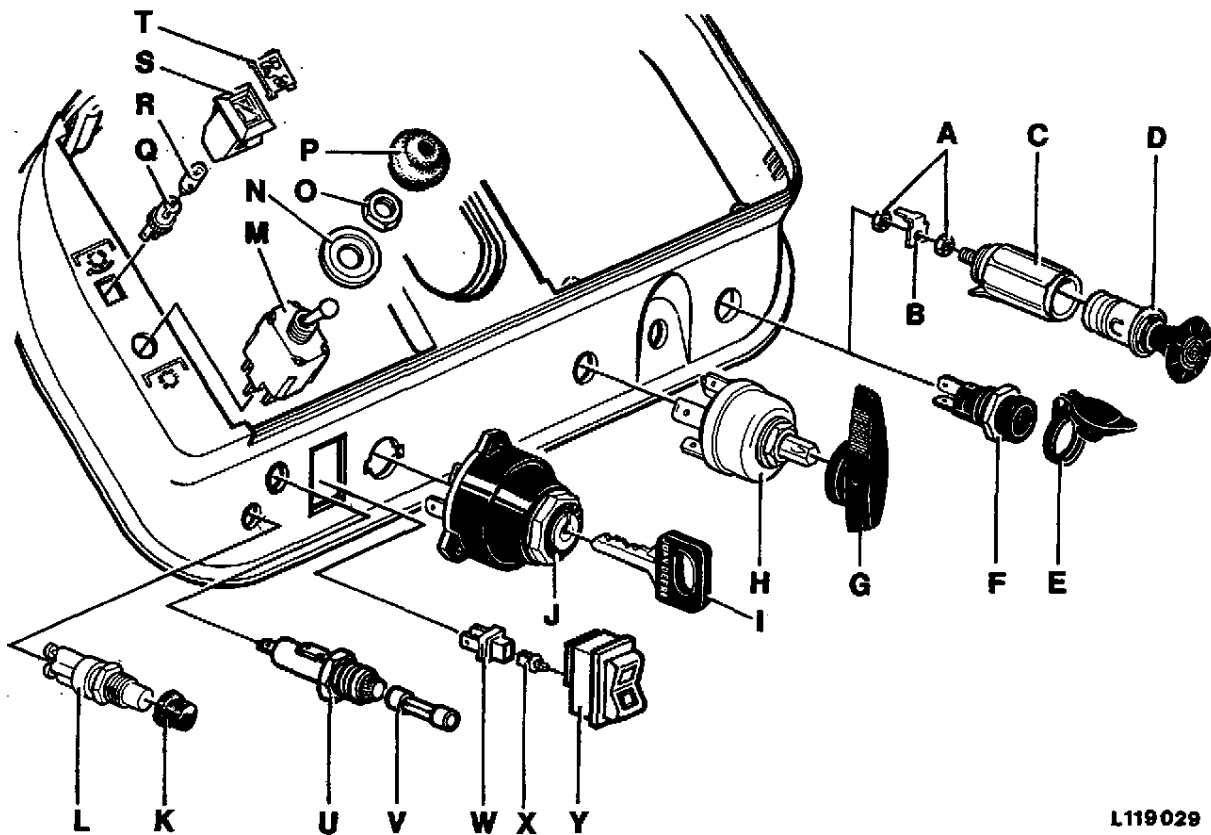
FUSE FOR AUTOMATIC FOUR-WHEEL BRAKE (Tractors with Analog Speed-Hour Meter)

A-15 ampère fuse



L119028-LB34010AE-010490

CONTROLS AND INSTRUMENTS, EXPLODED VIEW



L119029

A-Hex. nuts
B-Terminal
C-Cigarette lighter housing
D-Cigarette lighter
E-Socket cover
F-Socket
G-Knob
H-Start switch
I-Key

J-Main switch
K-Rubber cap
L-Push button for electric cold weather starting aid
M-Front PTO switch
N-Washer
O-Hex. nut
P-Rubber cap

Q-Bulb holder
R-Bulb (2 W)
S-Front PTO indicator light
T-Symbol cap
U-Fuse holder
V-Fuse (20 amps.)
W-Bulb holder
X-Bulb (12 W)
Y-Fuel pre-heater switch

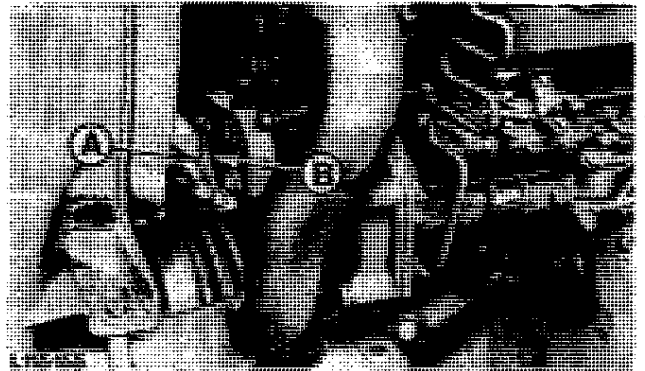
L119029-LB24010AE-010488

REPLACING MAGNETIC SENDING UNIT OF ENGINE SPEED METER OR DIGITAL SPEED-HOUR METER

Remove cap screws and lift off cover.

Lift out magnetic sending unit (A) and disconnect cable.

NOTE: Make sure that O-ring (B) is seated correctly when installing the magnetic sending unit.

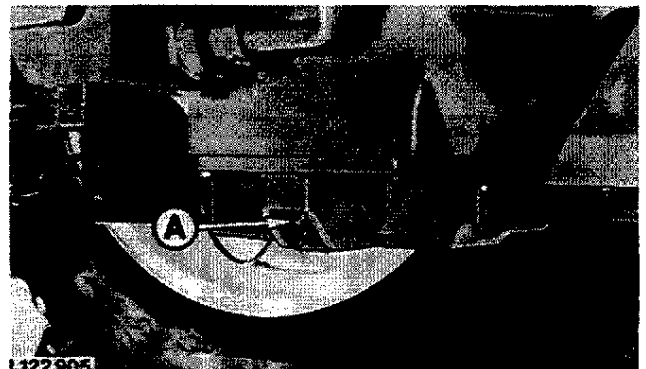


L115155-LB34010AE-010490

REPLACING MAGNETIC SENDING UNIT OF DIGITAL SPEED-HOUR METER

Disconnect cable and screw out magnetic sending unit (A).

Tighten magnetic sending unit (A) to 12 to 15 Nm (9 to 11 ft-lb).



L122905-LB34010AE-010490

INSTALLING START SAFETY SWITCH

Shift range shift lever to neutral position.

Screw in switch to shifting point. Then screw outward so far until it just opens.

Finally screw inward half a turn.

NOTE: Use the multimeter JT05791 or a test lamp (max. 1.2 watt) to determine the shifting point. Currents above 1 amp. will lead to destruction of reed contacts. Continuous current must not exceed 0.5 amps.

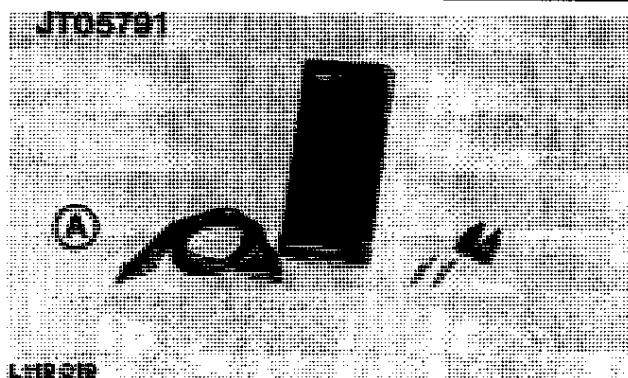


L115994-LB24010AE-010488

Group 15 CONTROLS AND INSTRUMENTS (WITHOUT CAB)

SPECIAL TOOLS

A—Installing start safety switch



L119019-LB24010AE-010488

SPECIFICATIONS

20 ampère fuses for:

Horn
Turn-signal lights
Warning light
Stop lights, left and right-hand
Socket for trailer lighting
Hazard warning light switch
Fuel preheater

0.5 ampère fuse for:

Start safety switch

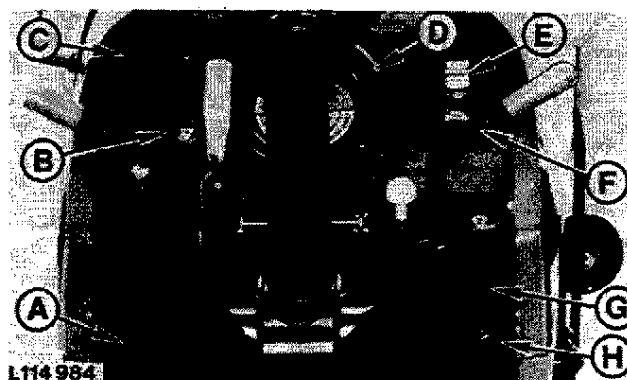
10 ampère fuses for:

All other circuits

BEDKONTR-LB34015AE-010888

CONTROLS AND INSTRUMENTS

- A—Socket for handlamp
- B—Hazard warning light switch
- C—Turn-signal light switch
- D—Instrument cluster
- E—Dimmed and full beam headlight switch
- F—Horn button
- G—Starter switch
- H—Main switch

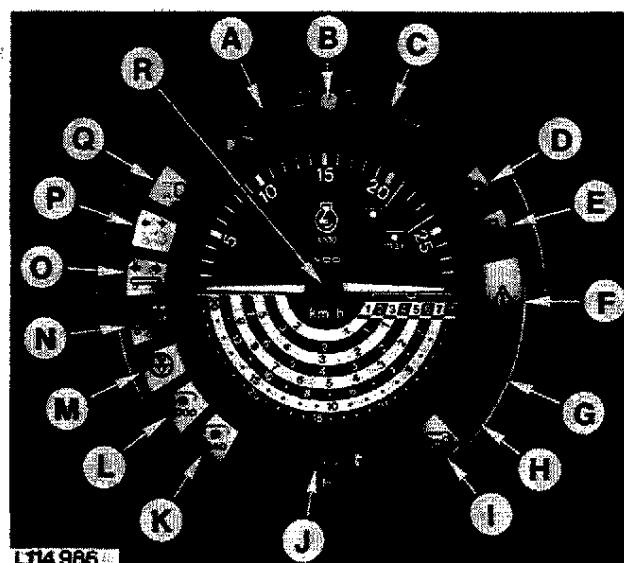


L114 984

L114984-LB24015AE-000488

INSTRUMENT CLUSTER

- A—Fuel gauge
- B—Indicator light for rear fog light
- C—Coolant temperature gauge
- D—Handbrake indicator light
- E—Engine oil pressure indicator light
- F—Warning light
- G—Transmission oil pressure indicator light
- H—Alternator indicator light
- I—Front wheel drive indicator light
- J—Hour meter
- K—PTO indicator light (540 rpm)
- L—PTO indicator light (1000 rpm)
- M—Air cleaner restriction indicator light
- N—Trailer turn-signal indicator light
- O—Trailer turn-signal indicator light
- P—Turn-signal indicator light
- Q—Headlights full beam indicator light
- R—Engine speed meter



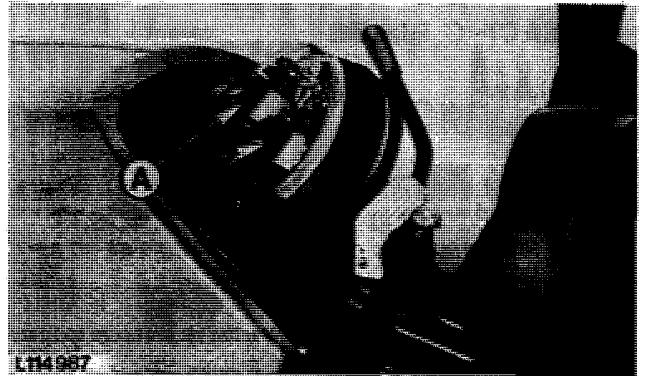
L114 986

L114986-LB24015AE-010886

REMOVING INSTRUMENT CLUSTER

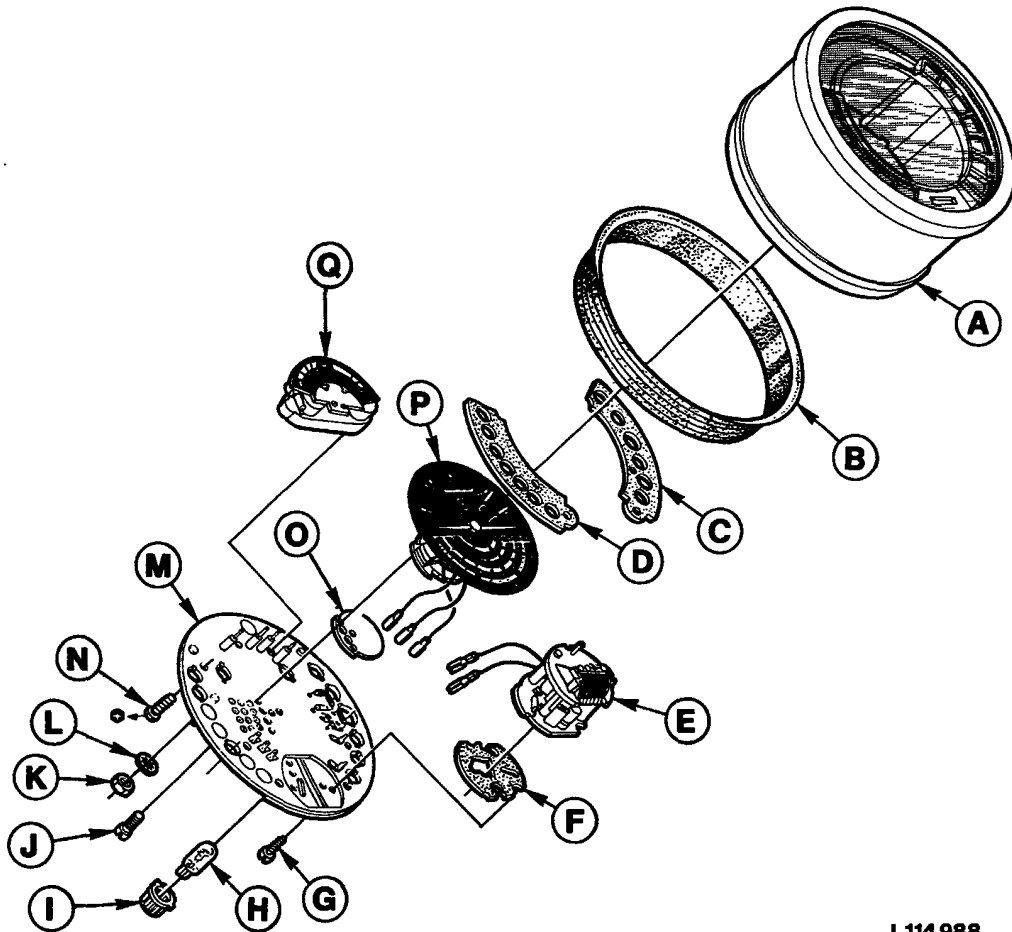
Pull instrument cluster out of dash and disconnect both plugs (A).

A—Plug



L114987-LB24015AE-010886

INSTRUMENT CLUSTER, EXPLODED VIEW



L114988

A—Housing
B—Seal ring
C—Felt gasket
D—Felt gasket
E—Hour meter
F—Foam rubber

G—Cylinder screw (3 used)
H—Bulb
I—Bulb holder
J—Cylinder screw (3 used)
K—Hex. nut (2 used)

L—Washer (2 used)
M—Printed circuit board
N—Phillips screw (6 used)
O—Insulation
P—Engine speed meter
Q—Coolant temperature and fuel gauge

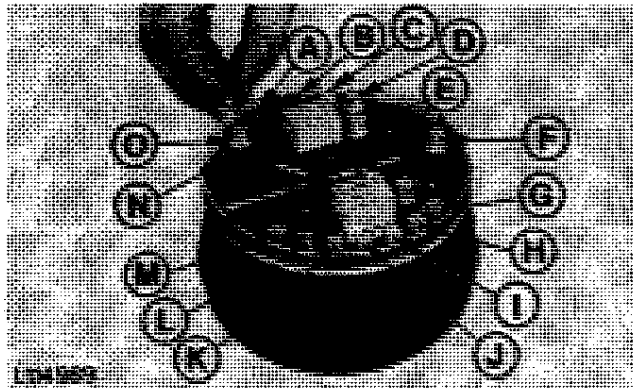
L114988-LB24015AE-010488

REPLACING BULBS

Remove bulb holder with bulb by turning counter-clockwise.

NOTE: In warning light (B), bulb holder and bulb are available as spare parts. In all other lights, bulb and bulb holder are available as an assembly only.

- A—Transmission oil pressure indicator light
- B—Warning light
- C—Engine oil pressure indicator light
- D—Handbrake indicator light
- E—Instrument lighting
- F—Indicator light for rear fog light
- G—Headlight full beam indicator light
- H—Turn-signal indicator light
- I—Trailer turn-signal indicator light
- J—Trailer turn-signal indicator light
- K—Air cleaner restriction indicator light
- L—PTO (speed) indicator light (1000 rpm)
- M—PTO (speed) indicator light (540 rpm)
- N—Front wheel drive indicator light
- O—Alternator indicator light



L114989-LB24015AE-010886

FUSES

- 1—Headlights – full beam and full beam indicator light
- 2—Headlights – dimmed
- 3—Work light, clearance light, left-hand, socket for trailer tail light, left-hand (terminal 58L), and parking lights (when equipped)
- 4—Instrument lighting, clearance light, right-hand, and tail light, left-hand
- 5—Registration plate light (when equipped), socket for trailer tail light, right-hand (terminal 58R) and tail light, right-hand
- 6—Not used
- 7—Front PTO
- 8—Front wheel drive
- 9—Instrument cluster (+)
- 10—Socket for handlamp or cigarette lighter
- 11—Horn, hazard warning light switch (terminal 15), turn-signal lights, turn-signal indicator light and warning light
- 12—Not used
- 13—Start safety switch
- 14—Stop light, left and right-hand and socket for trailer stop lights (terminal 54)
- 15—Hazard warning light switch (terminal 30)
- 16—Not used

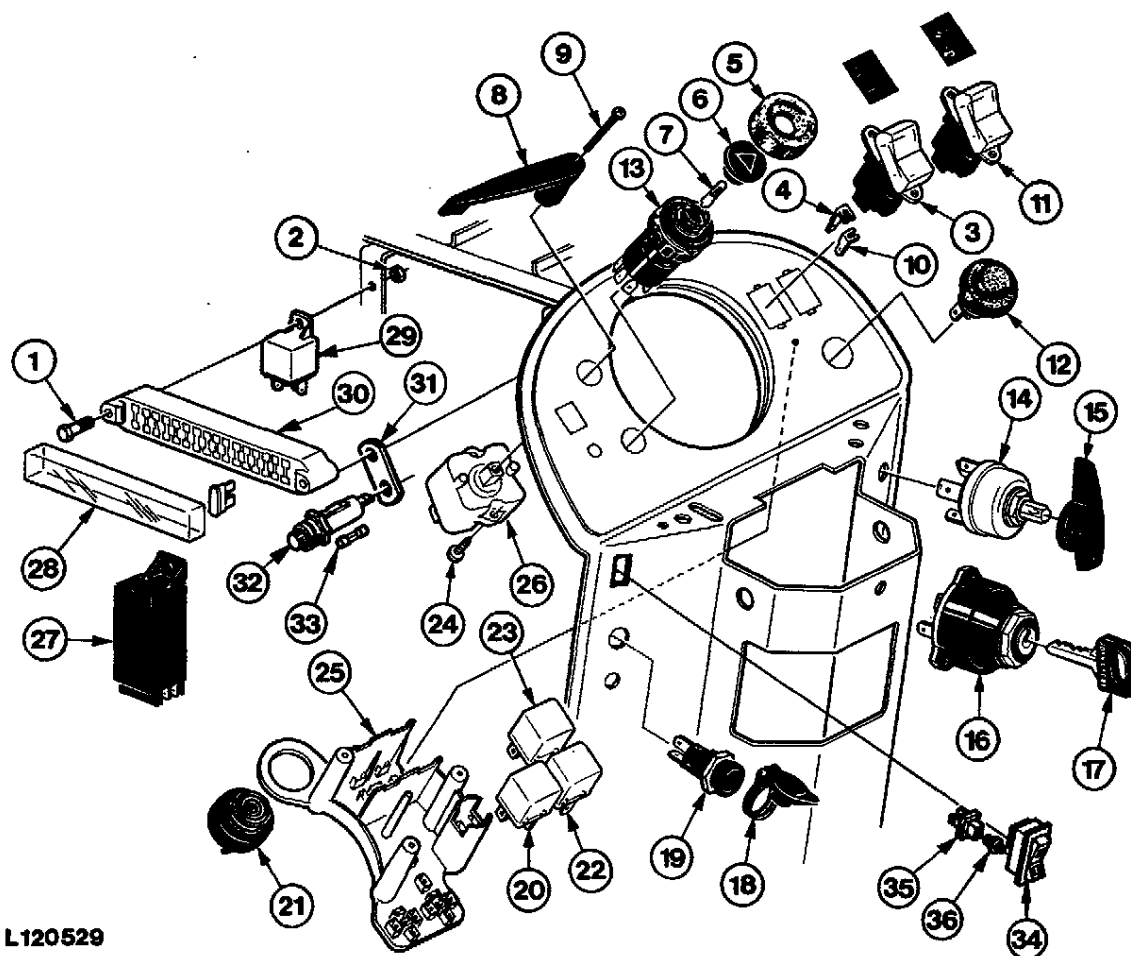
Fuses 11, 14, and 15 are 20 ampère fuses.

The start safety switch is protected by a 0.5 ampère fuse and the fuel preheater by a 20 ampère fuse.

All the remaining circuits are protected by 10 ampère fuses.



CONTROLS AND INSTRUMENTS , EXPLODED VIEW



L120529

- 1—Cap screw (2 used)
- 2—Hex. nut (2 used)
- 3—Headlight switch, high and low beam
- 4—Cable connector (2 used)
- 5—Rubber seal
- 6—Warning light cap
- 7—Bulb (2 W)
- 8—Turn-signal indicator lever
- 9—Phillips screw
- 10—Cable connector
- 11—Tumbler switch for front wheel drive
- 12—Horn button

- 13—Hazard warning light switch
- 14—Starter switch
- 15—Starter button
- 16—Main switch
- 17—Key
- 18—Cover for socket
- 19—Socket
- 20—Relay for handbrake indicator light
- 21—Acoustical warning signal
- 22—Starter relay

- 23—Time-delay relay
- 24—Phillips screw (2 used)
- 25—Console for relay
- 26—Turn-signal switch
- 27—Flasher
- 28—Cover
- 29—Relay for fuel preheater
- 30—Fuse box
- 31—Bracket
- 32—Fuse holder
- 33—Fuse (20 amps.)
- 34—Fuel preheater switch
- 35—Bulb holder
- 36—Bulb (1.2 W)

L120529-LB34015AE-010888

REPLACING MAGNETIC SENDING UNIT OF ENGINE SPEED METER

Remove cap screws and lift off cover.

Lift out magnetic sending unit (A) and disconnect cable.

NOTE: Make sure that O-ring (B) is seated correctly when installing the magnetic sending unit.



L115155-LB34015AE-010287

INSTALLING START SAFETY SWITCH

Shift range shift lever to neutral position.

Screw in switch to shifting point. Then screw outward so far until it just opens.

Finally screw inward half a turn.

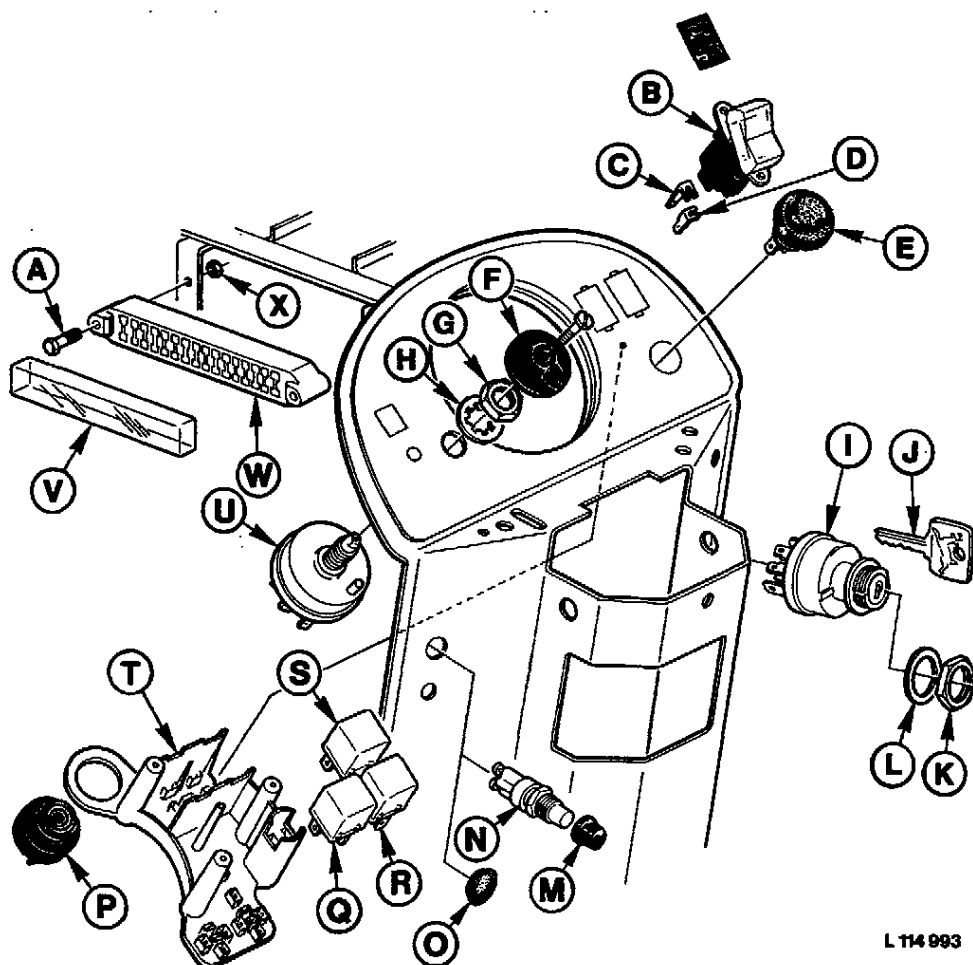
NOTE: Use the multimeter JT05791 or a test lamp (max. 1.2 watt) to determine the shifting point. Currents above 1 amp. will lead to destruction of reed contacts. Continuous current must not exceed 0.5 amps.



L115354

L115354-LB24015AE-010468

CONTROLS AND INSTRUMENTS, EXPLODED VIEW **("Sealed-Beam" Lighting System)**



L 114 993

A-Cap screw (2 used)
 B-Tumbler switch for front wheel drive
 C-Cable plug (2 used)
 D-Cable plug
 E-Horn button
 F-Starter button
 G-Hex. nut
 H-Toothed washer

I-Key switch
 J-Key
 K-Hex. nut
 L-Washer
 M-Rubber cap
 N-Push button for electric cold weather starting aid
 O-Plug

P-Acoustical warning signal
 Q-Relay for handbrake indicator light
 R-Starter relay
 S-Time-delay switch (transmission oil pressure)
 T-Console for relay
 U-Light switch
 V-Cover
 W-Fuse box
 X-Hex. nut (2 used)

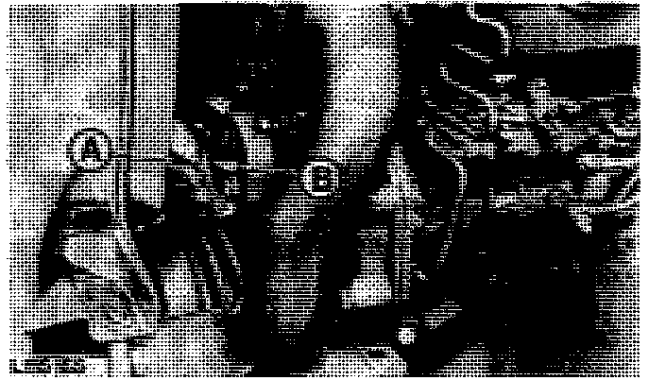
L114993-LB24015AE-000886

REPLACING MAGNETIC SENDING UNIT OF ENGINE SPEED METER

Remove cap screws and lift off cover.

Lift out magnetic sending unit (A) and disconnect cable.

NOTE: Make sure that O-ring (B) is seated correctly when installing the magnetic sending unit.



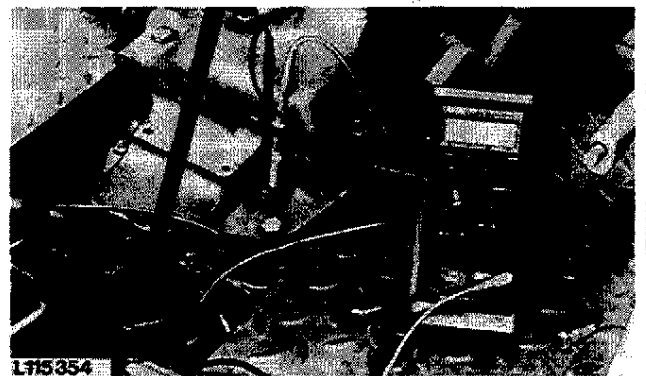
L115155-LB34015AE-010287

INSTALLING START SAFETY SWITCH

Place range shift lever in neutral position.

Screw in switch to shifting point. Then screw further by half a turn.

NOTE: Use multimeter JT05682 or a test lamp (max. 1.2 watt) to determine the shifting point. Currents above 1 amp. will lead to destruction of reed contacts. Continuous current must not exceed 0.5 amps.



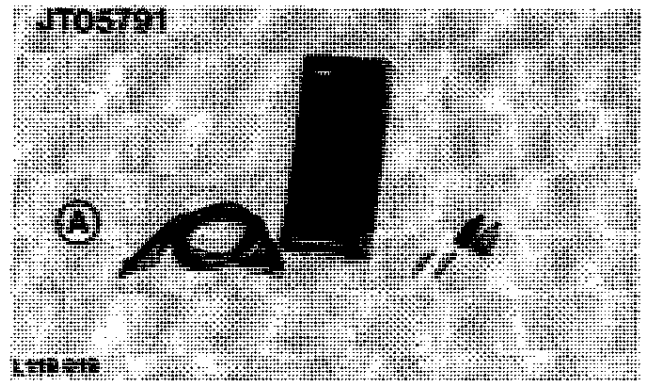
L115354

L115354-LB34015AE-010287

Group 20 CONTROLS AND INSTRUMENTS (WITH MC1 CAB)

SPECIAL TOOLS

A—Installing start safety switch



L119019-LB24010AE-010488

SPECIFICATIONS

20 ampère fuses for:

Worklights
Cab blower and heater fan
Hazard warning light switch
Fuel preheater

0.5 ampère fuse for:

Start safety switch

5 ampère fuse for:

Hydrostatic creeper transmission

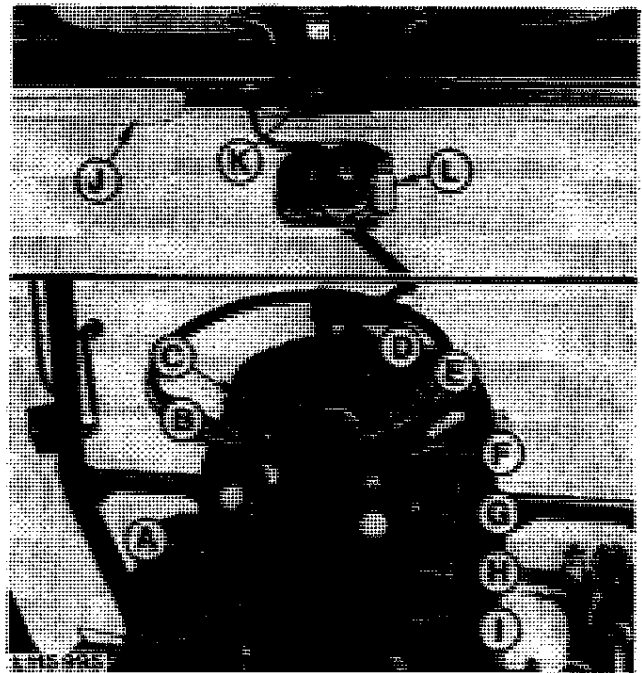
10 ampère fuses for:

All other circuits

BEDKONTR-LB34020AE-010888

CONTROLS AND INSTRUMENTS

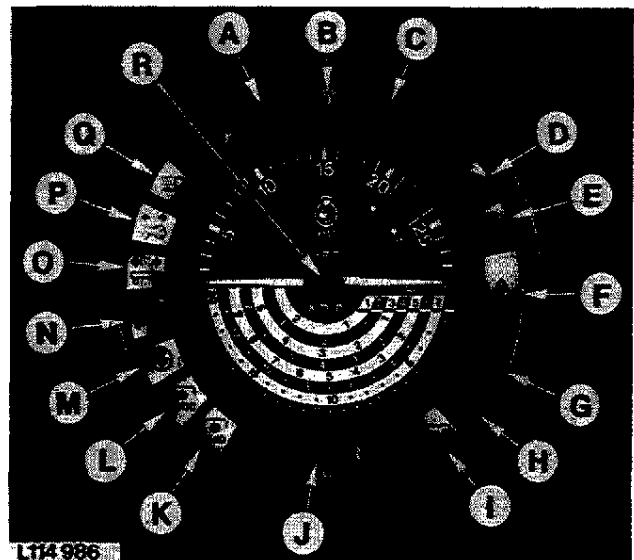
- A—Socket for handlamp
- B—Hazard warning light switch
- C—Turn-signal light switch
- D—Instrument cluster
- E—Dimmed and full beam headlight switch
- F—Horn button
- G—Starter switch
- H—Key switch
- I—Switch for cab heater and blower fan
- J—Cab interior light
- K—Switch for rear worklight
- L—Switch for windshield wiper



L115985-LB34020AE-010287

INSTRUMENT CLUSTER

- A—Fuel gauge
- B—Indicator light for rear fog light
- C—Coolant temperature gauge
- D—Handbrake indicator light
- E—Engine oil pressure indicator light
- F—Warning light
- G—Transmission oil pressure indicator light
- H—Alternator indicator light
- I—Front wheel drive indicator light
- J—Hour meter
- K—PTO (speed) indicator light (540 rpm)
- L—PTO (speed) indicator light (1000 rpm)
- M—Air cleaner restriction indicator light
- N—Trailer turn-signal indicator light
- O—Trailer turn-signal indicator light
- P—Turn-signal indicator light
- Q—Headlights, full beam indicator light
- R—Engine speed meter

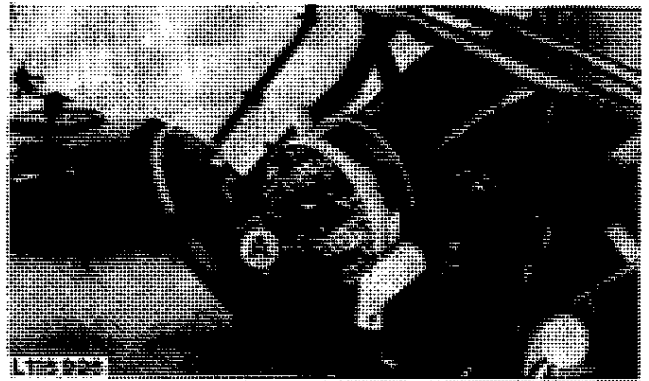


L114986-LB24015AE-010886

REMOVING INSTRUMENT CLUSTER

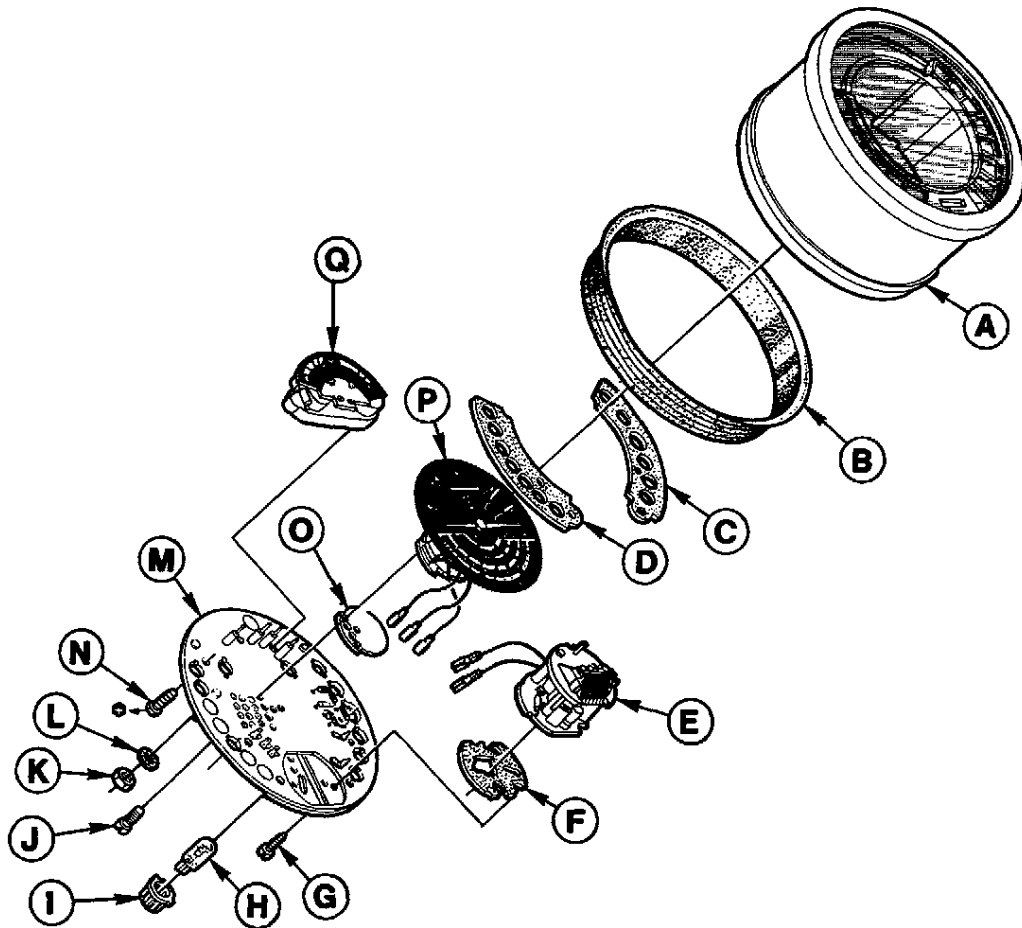
Pull instrument cluster out of dash and disconnect both plugs (A).

A—Plug



L115996-LB34020AE-010287

INSTRUMENT CLUSTER, EXPLODED VIEW



L114988

A—Housing
B—Seal ring
C—Felt gasket
D—Felt gasket
E—Hour meter
F—Foam rubber

G—Cylinder screw (3 used)
H—Bulb
I—Bulb holder
J—Cylinder screw (3 used)
K—Hex. nut (2 used)

L—Washer (2 used)
M—Printed circuit board
N—Phillips screw (6 used)
O—Insulation
P—Engine speed meter
Q—Coolant temperature and fuel gauge

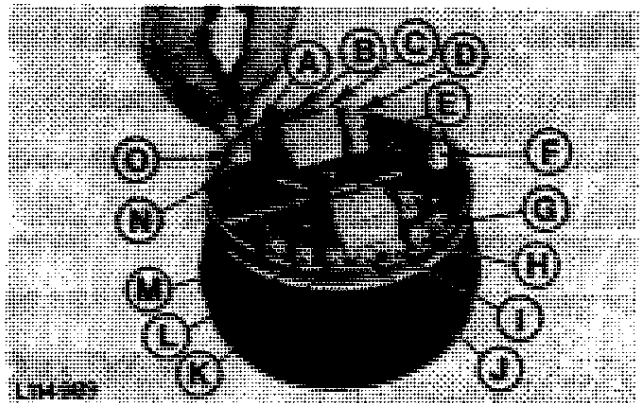
L114988-LB24015AE-000488

REPLACING BULBS

Remove bulb holder with bulb by turning counter-clockwise.

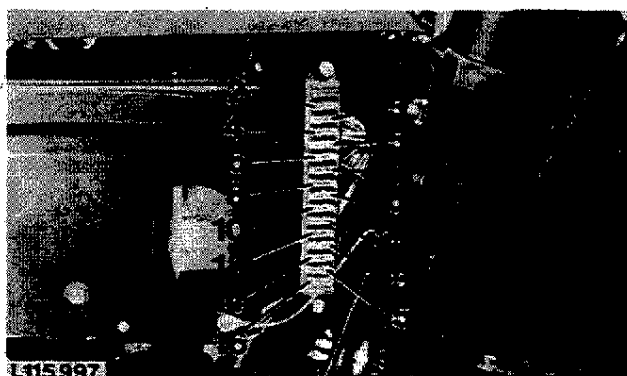
NOTE: In warning light (B), bulb holder and bulb are available as spare parts. In all other lights, bulb and bulb holder are available as an assembly only.

- A—Transmission oil pressure indicator light
- B—Warning light
- C—Engine oil pressure indicator light
- E—Instrument lighting
- F—Indicator light for rear fog light
- G—Headlight full beam indicator light
- H—Turn-signal indicator light
- I—Trailer turn-signal indicator light
- J—Trailer turn-signal indicator light
- K—Air cleaner restriction indicator light
- L—PTO (speed) indicator light (1000 rpm)
- M—PTO (speed) indicator light (540 rpm)
- N—Front wheel drive indicator light
- O—Alternator indicator light



L114989-LB24015AE-010886

FUSES



1—Headlights – full beam and full beam indicator light

2—Headlights – low beam

3—Instrument lighting, left-hand stop light, right-hand clearance light, registration plate light, socket for trailer lighting (terminal 58L) and parking lights (when equipped)

4—Left-hand clearance light, right-hand tail light and socket for trailer lighting (terminal 58R)

5—Worklight

6— Cab heater and blower fan

7—Front PTO

8—Instrument cluster (+) and automatic four-wheel brake

9—Front wheel drive and automatic four-wheel brake

10—Socket for handlamp or cigarette lighter

11—Horn, hazard warning light switch (terminal 15), turn signal lights, turn signal indicator light and warning light

12—Windshield wiper and cab blower fan

13—Start safety switch and hydrostatic creeper transmission

14—Left and right-hand stop lights and socket for trailer lighting (terminal 54)

15—Cab interior light and radio

16—Hazard warning light switch (terminal 30)

Fuses 5, 6 and 16 are 20 ampère fuses.

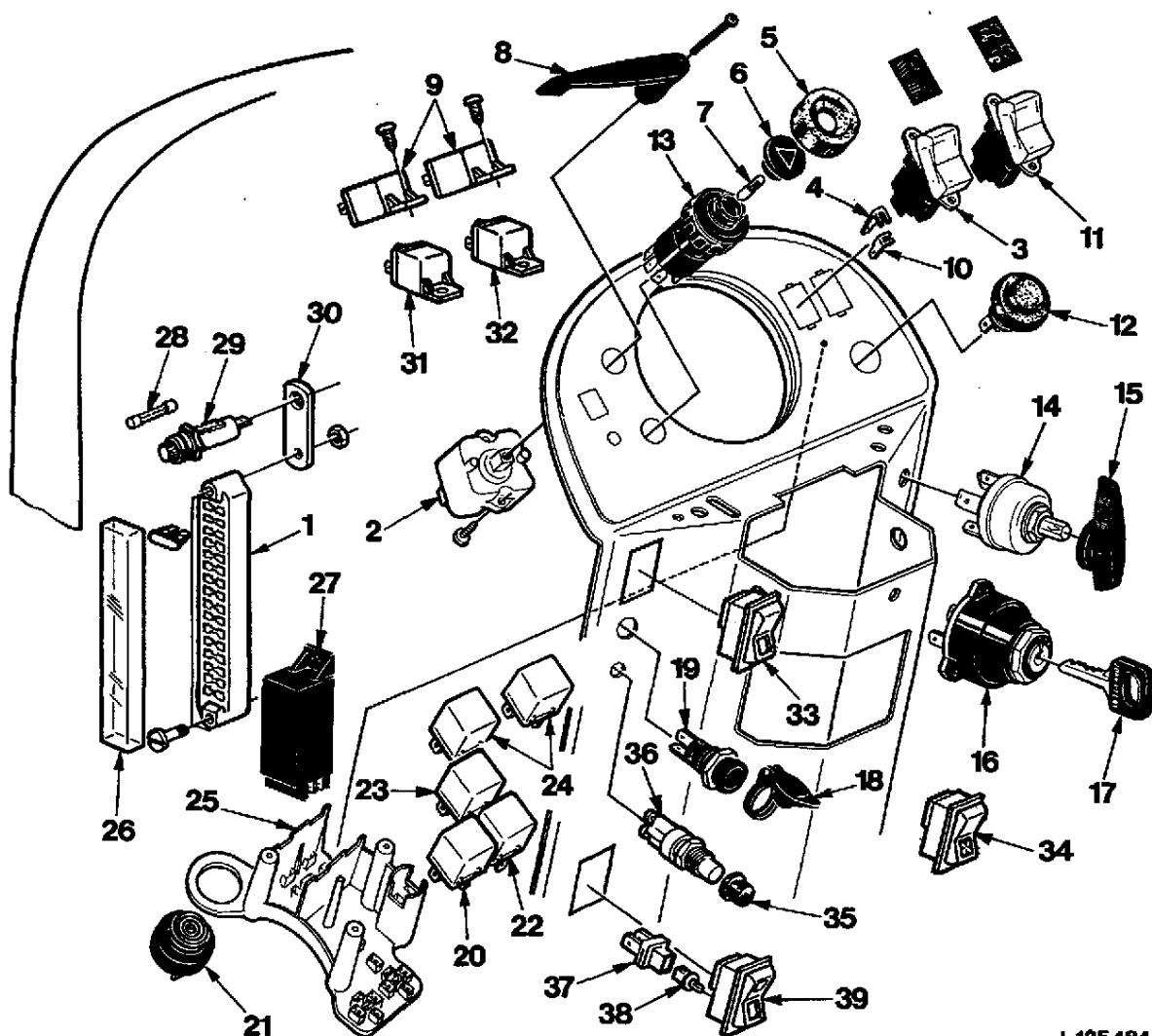
The start safety switch and hydrostatic creeper transmission are protected by 0.5 ampère fuses. The hydrostatic creeper transmission is protected by an additional 5 ampère fuse.

The fuel preheater is protected by a 20 ampère fuse.

The remaining circuits are protected by 10 ampère fuses.

L115997-LB34020AE-010888

CONTROLS AND INSTRUMENTS , EXPLODED VIEW



L 125 484

- | | | |
|---|--|-------------------------------------|
| 1-Fuse box | 14-Starter switch | 27-Flasher |
| 2-Turn-signal switch | 15-Starter button | 28-Fuse (20 ampère) |
| 3-Full beam and dipped headlight switch | 16-Main switch | 29-Fuse holder |
| 4-Cable connector (2 used) | 17-Key | 30-Bracket |
| 5-Rubber seal | 18-Cover for socket | 31-Relay for fuses 6 to 12 |
| 6-Warning light cap | 19-Socket | 32-Relay for fuel preheater |
| 7-Bulb (2 W) | 20-Relay for handbrake indicator light | 33-Toggle switch for headlights |
| 8-Turn-signal lever | 21-Acoustical warning signal | 34-Blower fan switch |
| 9-Phillips screw | 22-Starter relay | 35-Rubber cap |
| 10-Cable connector | 23-Time-delay switch | 36-Button for electric starting aid |
| 11-Tumbler switch for front wheel drive | 24-Relay for worklight | 37-Bulb holder |
| 12-Horn button | 25-Console for relay | 38-Bulb (1.2 W) |
| 13-Hazard warning light switch | 26-Cover | 39-Switch for fuel preheater |

L125484-LB34Q20AE-010888

REPLACING MAGNETIC SENDING UNIT OF ENGINE SPEED METER

Remove cap screws and lift off cover.

Lift out magnetic sending unit (A) and disconnect cable.

NOTE: Make sure that O-ring (B) is seated correctly when installing the magnetic sending unit.



L115155-LB34020AE-010287

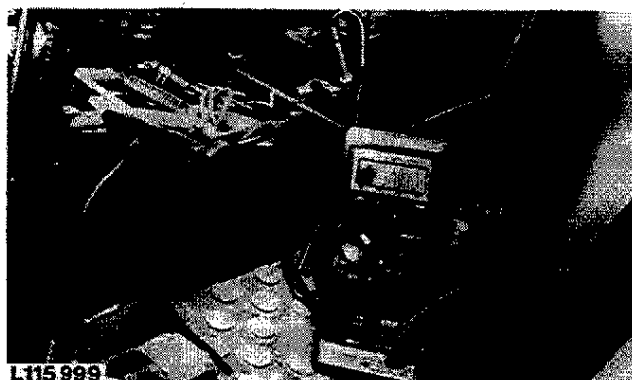
INSTALLING START SAFETY SWITCH

Place range shift lever in neutral position.

Screw in switch to shifting point. Then screw out until the switch just opens.

Finally screw in by one-half turn.

NOTE: Use multimeter JT05791 or a test lamp (max. 1.2 watt) to determine the shifting point. Currents above 1 amp. will lead to destruction of reed contacts. Continuous current must not exceed 0.5 amps.



L115 999

L115999-LB34020AE-010888

ADJUSTMENT OF DIGITAL SPEED-HOUR METER

NOTE: When adjusting digital speed-hour meter always carry out the four adjustments described below.

ADJUSTING TRACTOR CODE

Switch off ignition.

Press keys (A) and (C) at the same time and turn ignition on.

Wait until code number (E) appears.

NOTE: For the following steps keep ignition turned on.

ADJUSTING TYPE CODE

Enter tractor type code as follows (see type code list):

By pressing key (A) the code number increases; pressing key (B) decreases the code number.

When the correct code number is displayed press keys (C) and (D) at the same time.

The code is stored when display changes.

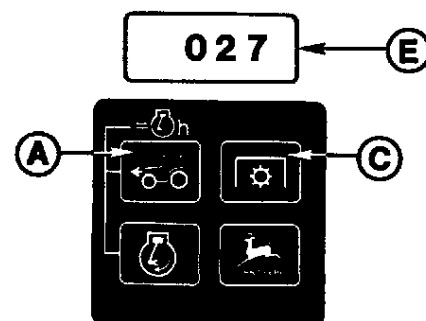
Type Code List: km/h

Code	Tractor
027	2250 to 2850
031	2250 to 2850*

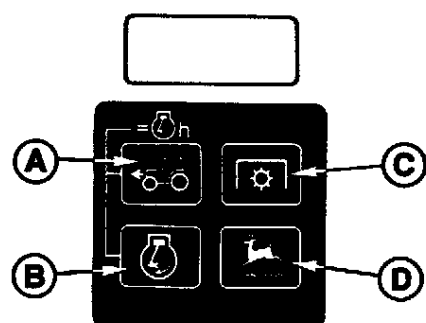
Type Code List: mph

Code	Tractor
007	2250 to 2850
011	2250 to 2850*

* Tractors equipped with 540E PTO



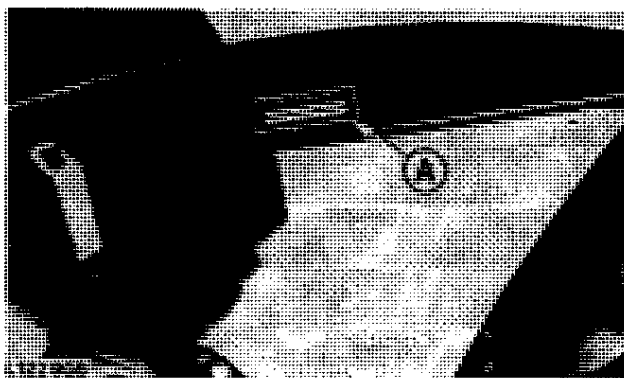
L122906



L122907

GEAR RATIO ADJUSTMENT

The differential and front wheel drive gear ratios are stamped on the transmission serial number plate (A). The input code can be found by looking for the relevant gear ratios in the speed-hour meter assignment list.

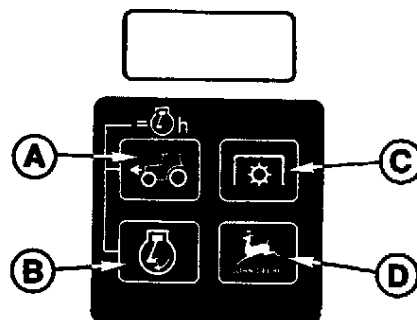


Enter code as follows:

By pressing key (A) the code number increases; pressing key (B) decreases the code number.

After entering in the code number press keys (C) and (D) at the same time.

NOTE: The code is stored when display changes.



L122 907

L122908, L122907-LB34021AE-010490

SPEED-HOUR METER ASSIGNMENT LIST**Tractors up to 30 km/h (18.5 mph) Max. Speed**

(A)	(B)	(C)	(D)
2250, 2450, 2650, 2850 ..	H52/9	21/23	0003
2250, 2450	H50/8	21/23	0001
2250, 2450	H50/8	21/22	0003
2250, 2450	H52/9	22/21	0004
2650, 2850	H52/9	22/22	0007
2250, 2450, 2650, 2850 ..	H46/9	22/22	0002
2250, 2450	H52/9	22/22	0002
2250, 2450	H52/9	23/20	0009
2250, 2450, 2650, 2850 ..	H46/9	23/21	0006
2250, 2450	H52/9	23/21	0006
2650, 2850	H52/9	21/22	0005
2650, 2850	H46/9	22/21	0004
2650	H52/9	20/23	0001
2650	H43/9	28/22	0010
2850	H46/9	23/20	0008

L 123001

A—Tractor type
B—Differential gear ratio

C—Front wheel drive gear ratio
D—Input code

SPEED-HOUR METER ASSIGNMENT LIST

Tractors up to 40 km/h (25 mph) Max. Speed

(A)	(B)	(C)	(D)
2250, 2450	H47/10	28/23	0002
2250, 2450, 2650	H41/10	28/23	0001
2250, 2450	H47/10	28/22	0004
2250, 2450, 2650, 2850 ..	H41/10	28/22	0002
2250, 2450	H47/10	28/21	0006
2850	H41/10	28/21	0005

L 123002

A-Tractor type
B-Differential gear ratio

C-Front wheel drive gear ratio
D-Input code

L123002-LB34021AE-010490

ADJUSTMENT OF TIRE-INDEX-RADIUS

Index-radius can be found in tire size chart.

NOTE: On tractors with mph-display the index-radius has to be divided by 25,4 mm (1 in.).

Enter index-radius as follows:

By pressing key (A) the code number increases; pressing key (B) decreases the code number.

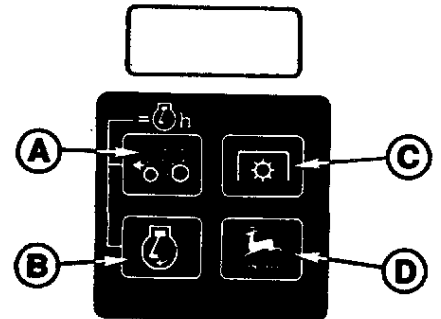
After entering in the code number press keys (C) and (D) at the same time.

The code is stored when display changes.

After input is completed, display must show type code which was entered first. Turn off ignition.

If the ignition is now turned on again desired display should appear.

NOTE: If input was faulty switch off ignition and repeat input procedure.



L122 907

L122907-LB34021AE-010490

TIRE SIZE CHART

A	B	C	
		(mm)	(in.)
	7.2-24	450	17.72
	7.2-30	525	20.67
	7.2-36	650	25.59
	7.2-40	470	18.50
	8.3-24	470	18.50
	8.3-28	520	20.47
	8.3-32	570	22.44
	8.3-36	620	24.41
	8.3-42	695	27.36
	8.3-44	720	28.35
	9.5-20	445	17.52
	9.5-24	495	19.49
	9.5-28	545	21.46
	9.5-30	570	22.44
	9.5-32	595	23.42
	9.5-36	645	25.39
	9.5-42	720	28.35
	9.5-44	745	29.33
	9.5-48	795	31.30
	11.2-20	465	18.31
320/70R24	11.2-24	515	20.27
320/70R28	11.2-28	565	22.24
	11.2-32	615	24.21
	11.2-36	665	26.18
	11.2-38	690	27.16
	11.2-48	820	32.28
	12.4-20	490	19.29
360/70R24	12.4-24	540	21.26
360/70R28	12.4-28	590	23.23
	12.4-32	640	25.20
	12.4-36	690	27.16
	12.4-38	720	28.35
	12.4-46	820	32.28
380/70R24	13.6-24	560	22.05
380/70R28	13.6-28	610	24.02
	13.6-36	715	28.15
	13.6-38	740	29.13

A-Series '70' tires

B-Conventional tire sizes

C-Index-radius

L 123003

L123003-LB34021AE-010490

TIRE SIZE CHART (Continued)

A	B	C	
		(mm)	(in.)
420/70R24	14.9-24	590	23.23
	14.9-26	615	24.21
420/70R28	14.9-28	640	25.20
	14.9-30	665	26.18
	14.9-38	765	30.12
	15.5-36	745	29.33
480/70R28	16.9-24	620	24.41
	16.9-26	645	25.39
	16.9-28	670	26.38
	16.9-30	695	27.36
480/70R34	16.9-34	745	29.33
480/70R38	16.9-38	795	31.30
520/70R34	18.4-24	645	25.39
	18.4-26	670	26.38
	18.4-28	695	27.36
	18.4-30	720	28.35
	18.4-34	770	30.31
	18.4-38	820	32.28
520/70R38	18.4-42	870	34.25
580/70R38	20.8-34	805	31.69
	20.8-38	855	33.66
	20.8-42	905	35.63
	23.1-26	755	29.72
	23.1-30	805	31.69
	23.1-34	855	33.66
	24.5-32	830	32.68
	28.1-26	759	29.88

L 123004

A-Series '70' tires

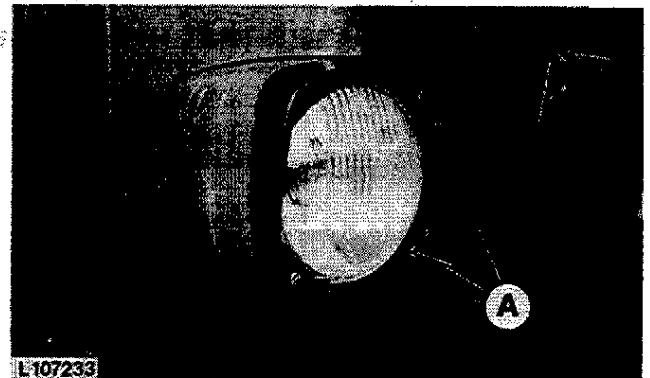
B-Conventional tire sizes

C-index-radius

L123004-LB34021AE-010490

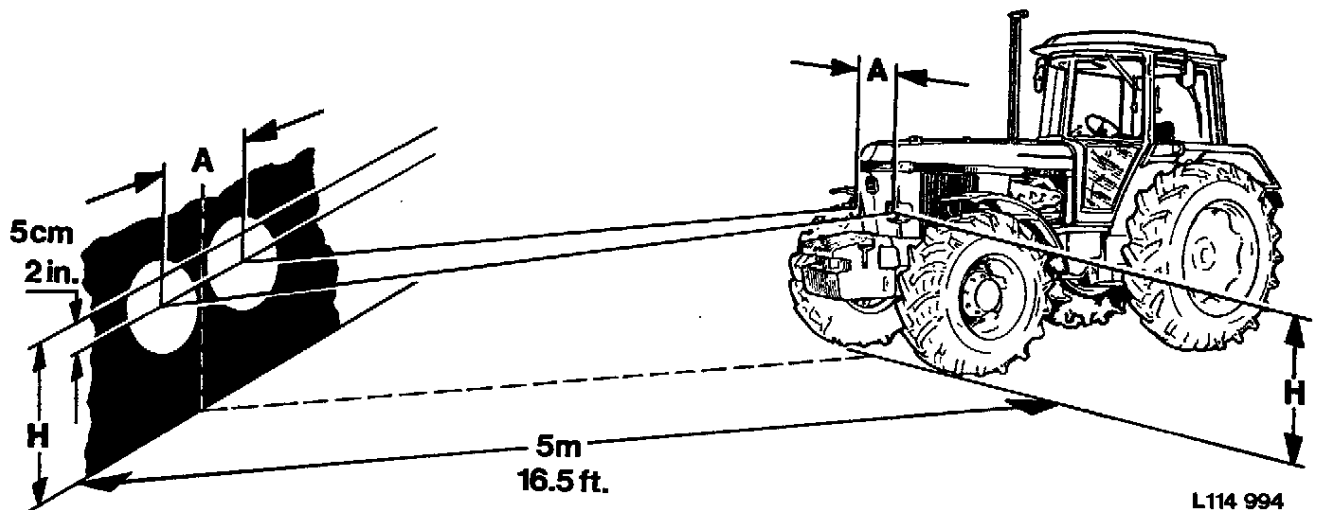
ADJUSTING HEADLIGHTS WITH TESTING DEVICE

To adjust headlights, use a commercial headlight testing device with optical lens system. Test each headlight individually. Make the required corrections by turning adjusting screws (A).



L107233-LB24020AE-010886

ADJUSTING HEADLIGHTS WITHOUT TESTING DEVICE



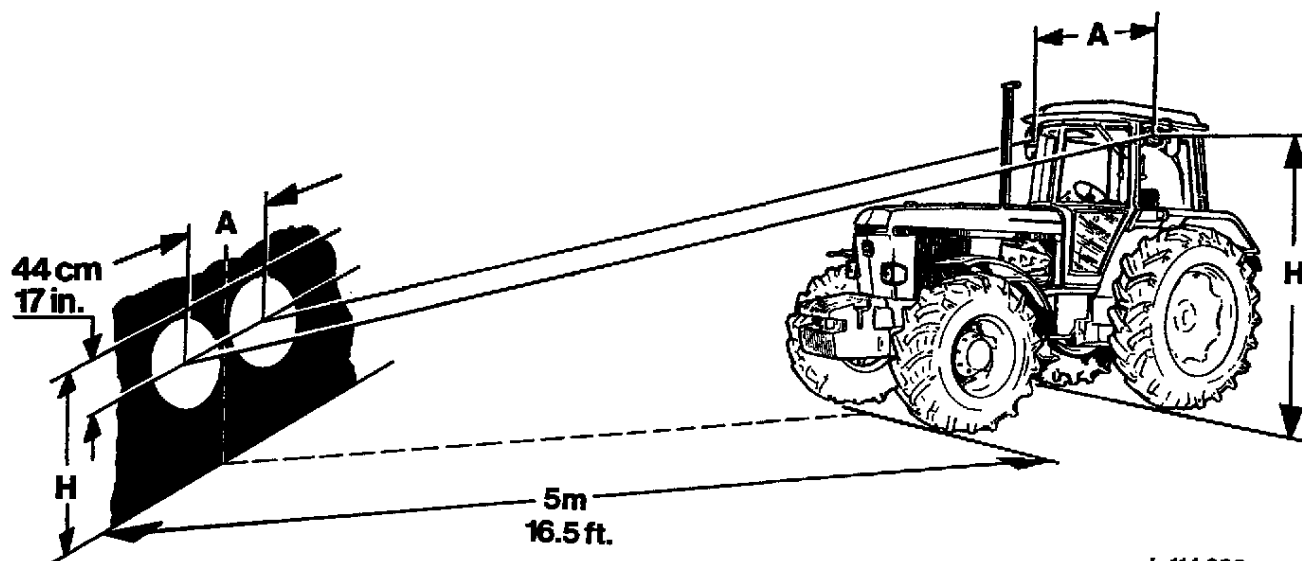
Park tractor on a level surface 5 m (16.5 ft.) from a vertical wall.

Using adjusting screws, adjust each headlight so that the bright/dark border forms a horizontal line 5 cm (2 in.) lower than headlight height (H).

Switch to full beam. Laterally align headlights so that distance between light beam center on test surface corresponds to distance (A) of headlights.

L114994-LB24020AE-010886

ADJUSTING HEADLIGHTS MOUNTED ON CAB ROOF



L 114 996

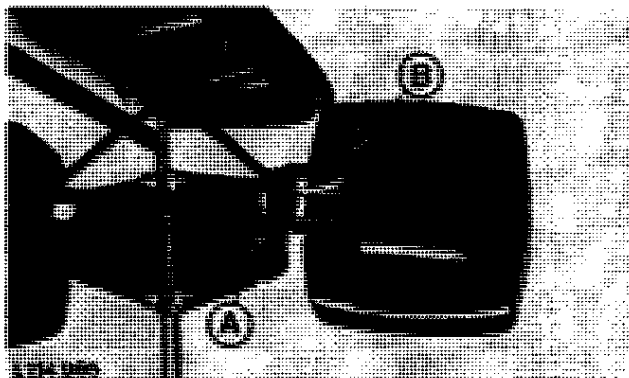
Park tractor on a level surface 5 m (16.5 ft.) from a vertical wall. Adjust each headlight so that the bright/dark border forms a horizontal line 44 cm (17 in.) lower than headlight height (H).

Switch to full beam. Laterally align headlights so that distance between light beam center on test surface corresponds to distance (A) of headlights.

L114996-LB24020AE-010886

Adjusting the Headlights

Adjust headlights after having loosened attaching nuts (A and B).



L114996-LB24020AE-010886

SPECIAL TOOLS

KJD10160

**A-Starting motor removal and
installation**



L119033



L119033-LB24025AE-010488

SPECIFICATIONS

Minimum diameter of commutator (important for
turning down:

Caution! Armature shaft locating points are slightly
off-center)

42.5 mm (1.67 in.)

Commutator out-of-roundness, max.

0.03 mm (0.0012 in.)

Out-of-roundness of stack of armature plates, max. ..

0.05 mm (0.002 in.)

Undercutting insulation after initial turn-down
of commutator by approx. (then finish-turned)

0.5 to 0.8 mm (0.02 to 0.03 in.)

Minimum brush length

7.5 mm (0.29 in.)

Armature end play

0.1 to 0.3 mm (0.003 to 0.012 in.)

Armature braking torque

0.5 to 1.2 Ncm (0.43 to 1.04 in-lb)

Overrunning torque

0.35 to 0.65 Ncm (0.30 to 0.56 in-lb)

STARTER-LB34030AE-000287

TORQUES FOR HARDWARE

Hex. nut of terminal 30

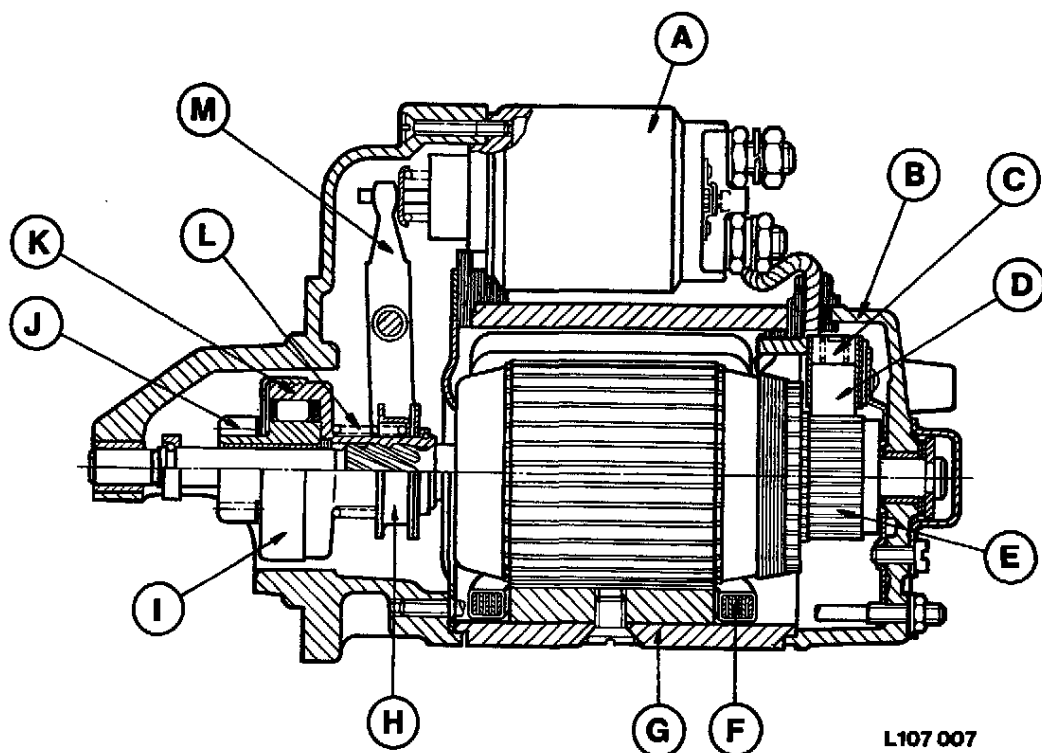
30 Nm (23 ft-lb)

Cylinder screw of clamping bracket of
terminal 50

1 to 1.3 Nm (9 to 11 in-lb)

STARTER-LA74020BE-000285

STARTING MOTOR, SECTIONAL VIEW



A-Solenoid switch
B-Commutator end frame
C-Compression spring
D-Carbon brush
E-Commutator

F-Winding
G-Field frame
H-Guide ring
I-Overrunning clutch
(roller-type)

J-Pinion
K-Drive hub
L-Engaging spring
M-Engaging lever

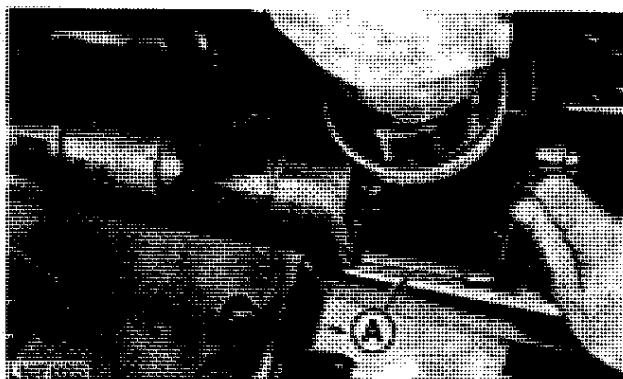
L107007-LA74020AE-001184

STARTING MOTOR - REMOVAL

Disconnect battery ground straps.

Disconnect cables from starting motor.

Remove starting motor with special wrench KJD10160 (A).



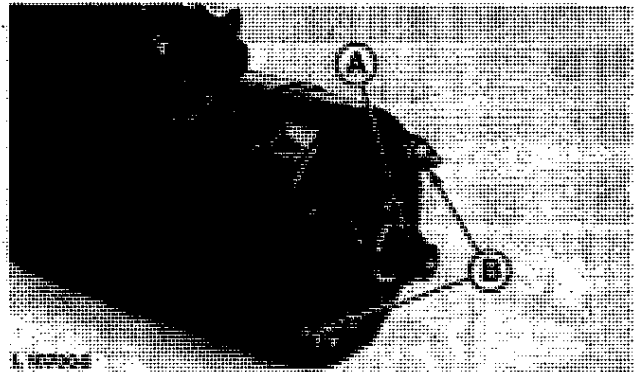
L107025-LB34030AE-010888

Starting Motor

DISASSEMBLY

Unscrew cover cap (A), remove fixing washer and shims, paying attention to rubber ring.

Remove hex. nuts (B)

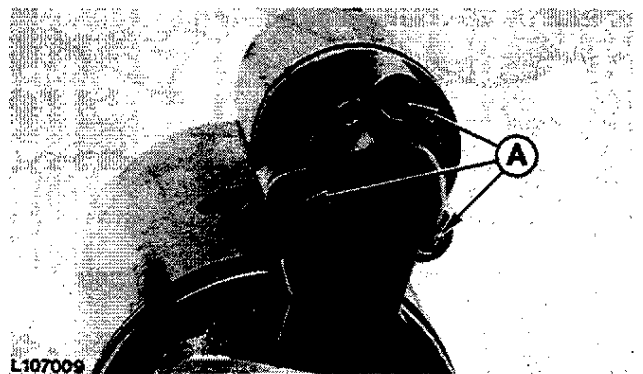


L107008-LA74020AE-091184

SOLENOID SWITCH – REMOVAL

Disconnect wiring connection from solenoid switch.

Remove attaching screws (A) and pull out solenoid switch with pinion head.

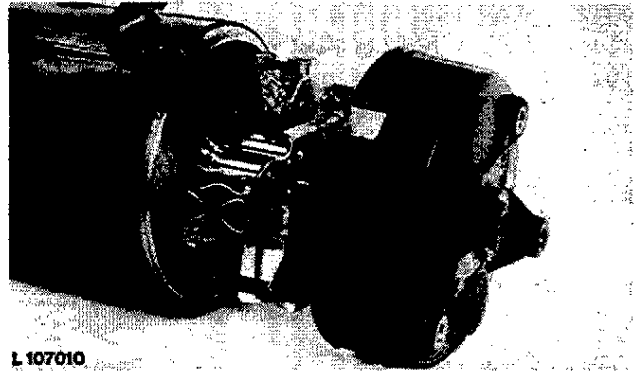


L107009-LA74020AE-091184

CARBON BRUSH PLATE – REMOVAL

Carefully extract commutator end frame because the compression springs may spring out of the brush holders.

Pull carbon brushes out of carbon brush plate and remove carbon brush plate from armature shaft.

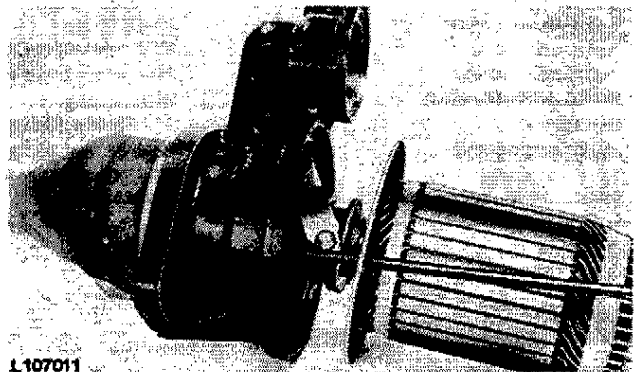


L107010-LA74020AE-091184

ARMATURE – REMOVAL

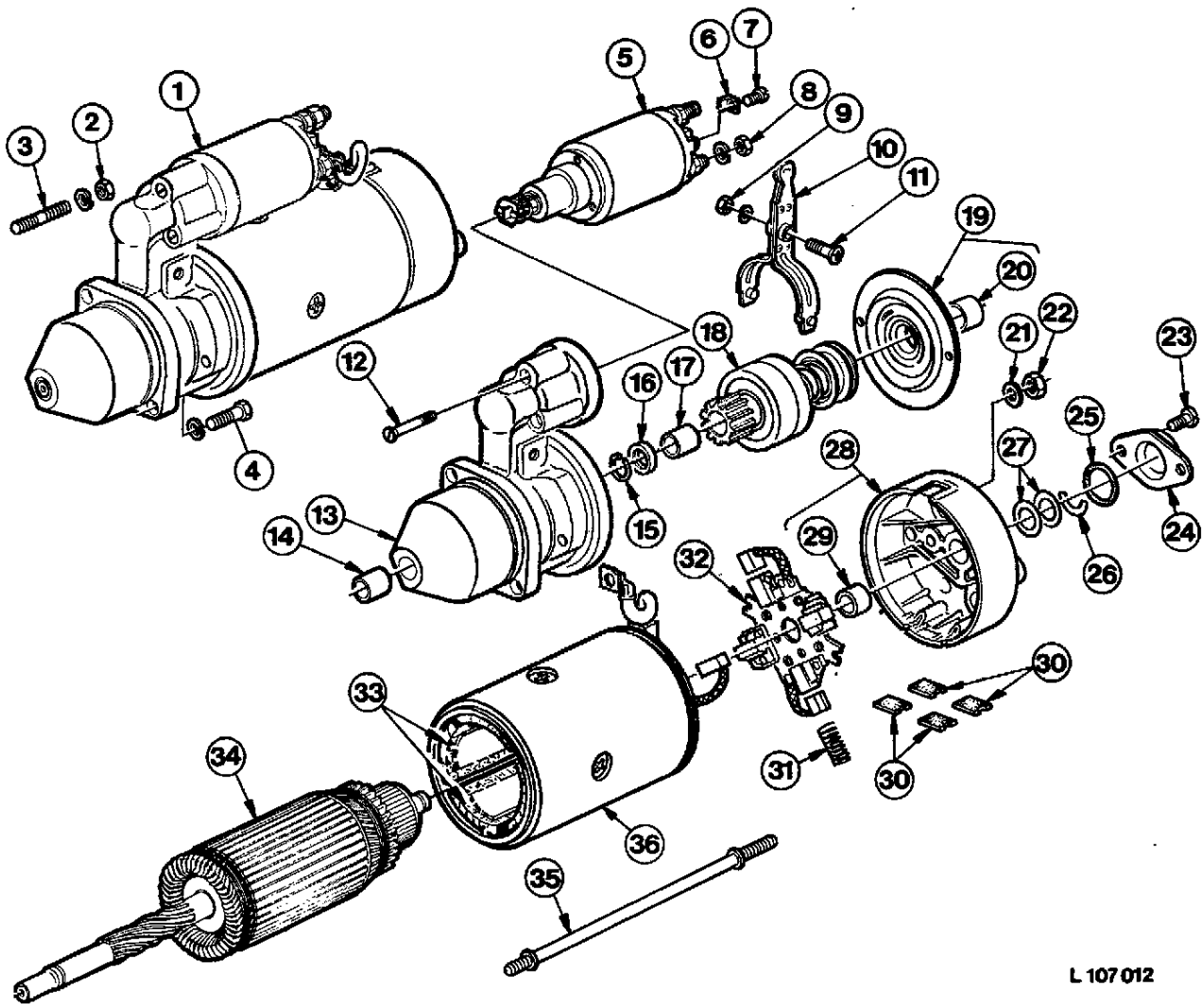
Carefully pull armature with drive end frame assembly from field frame (do not damage windings).

Remove engaging lever and armature jointly out of drive end frame assembly.



L107011-LA74020AE-091184

STARTING MOTOR, EXPLODED VIEW



L 107 012

- 1-Starting motor assy.
- 2-Hex. nut
- 3-Stud
- 4-Cap screw
- 5-Solenoid switch
- 6-Securing clip
- 7-Cylinder screw
- 8-Hex. nuts (4 used)
- 9-Hex. nut
- 10-Engaging lever
- 11-Pivot screw
- 12-Countersunk screw (3 used)

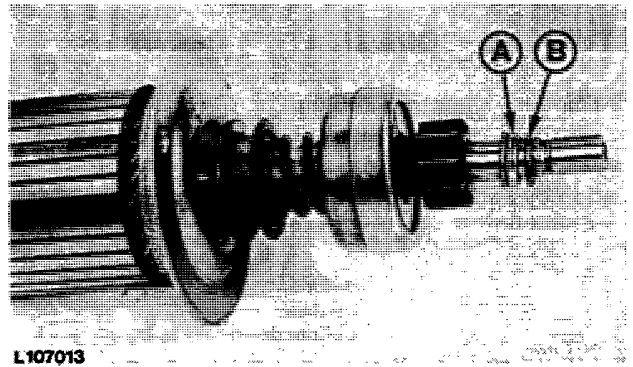
- 13-Drive end frame assembly
- 14-Bushing
- 15-Snap ring
- 16-Stop ring
- 17-Bushing
- 18-Drive with pinion
- 19-Center bearing
- 20-Bushing
- 21-Washer (2 used)
- 22-Hex. nut (2 used)
- 23-Cylinder screw (2 used)
- 24-Cover cap

- 25-Rubber ring
- 26-Fixing washer
- 27-Shims
- 28-Commutator end frame
- 29-Bushing
- 30-Carbon brushes
- 31-Compression spring (4 used)
- 32-Carbon brush plate
- 33-Winding
- 34-Armature
- 35-Stud (2 used)
- 36-Field frame

SNAP RING – REMOVAL

Drive back stop ring (A) and bend open snap ring (B).

Remove drive with pinion and center bearing from armature shaft.



L107013-LA74020AE-091184

CLEANING PARTS

Wash parts in petrol or a safe solvent and dry with compressed air.

NOTE: Armature, windings and drive with pinion must not be placed in cleaning fluid.

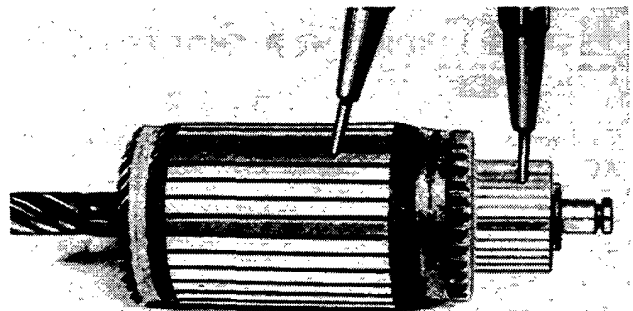
Inspect all parts for wear and mechanical damage.

STARTER-LA74020LE-091184

TESTING ARMATURE FOR GROUNDS

Test armature for grounds using a test lamp (e.g. Bosch EFAW 84) with approx. 40 volts AC.

The test lamp should not light up; if it does light, the armature is grounded and must be replaced.



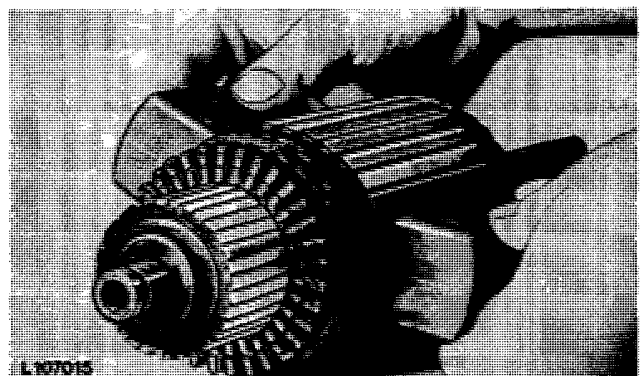
L107014

L107014-LA74020AE-091184

TESTING ARMATURE FOR SHORT CIRCUIT

Use a testing device such as Bosch EFAW 90 or 95 and a growler EFAW 95/10.

Often, a shorted winding is indicated by a burned commutator bar.



L107015

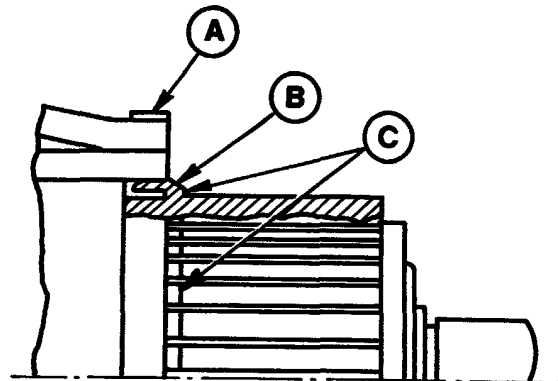
L107015-LA74020AE-091184

TURNING COMMUTATOR DOWN

Minimum diameter: 42.5 mm (1.67 in.)

After turning the commutator down, undercut its insulation by approx. 0.5 to 0.8 mm (0.02 to 0.03 in.) with a commutator saw and then finish-turn.

A-Soldering lug
B-Claw
C-Turn down only to here



L107016

L107016-LB34030AE-010287

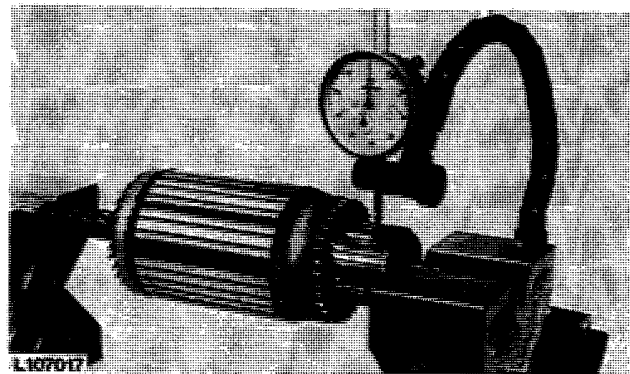
TESTING COMMUTATOR FOR OUT-OF-ROUNDNESS

Out of roundness:

Commutator, max.: 0.03 mm (0.0012 in.)

Stack of armature plates, max.: 0.05 mm (0.002 in.)

Check armature once again for grounds and short circuits.



L107017

L107017-LA74020AE-080285

TESTING WINDING FOR SHORTED OR OPEN CIRCUITS

Test winding for shorted circuit; test voltage 40 volts AC.

Test winding for open circuit; test voltage 6 to 12 volts DC.

Replace burned or damaged windings.

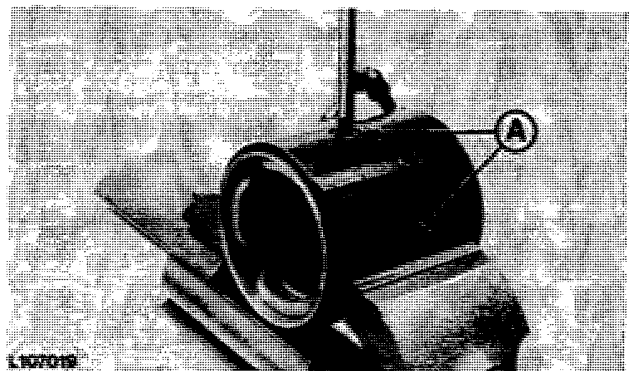


L107018

L107018-LA74020AE-091184

WINDING - REMOVAL

Mark position of pole shoes and winding ends and unscrew pole shoe screws (A).



L107019

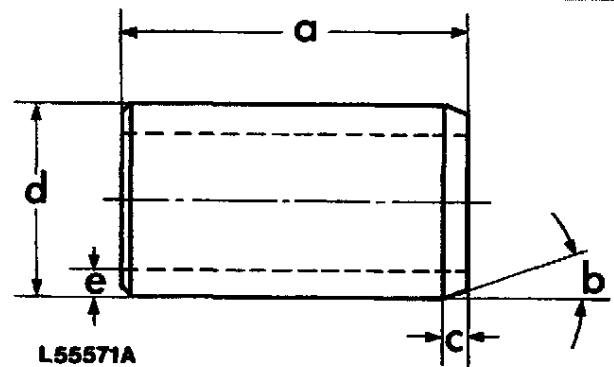
L107019-LA74020AE-091184

WINDINGS – INSTALLATION

Slightly warm windings and insert together with pole shoes into field frame. Insert pole shoe screws.

Press suitable mandrel (see illustration) between pole shoes.

- a—85 mm (3.35 in.)
- b—5° Chamfer
- c—12 to 14 mm (0.47 to 0.55 in.)
- d—75.80 to 75.85 mm (2.984 to 2.986 in.)
- e—Wall thickness 12 to 15 mm (0.47 to 0.59 in.)



Firmly tighten pole shoe screws and press out mandrel.

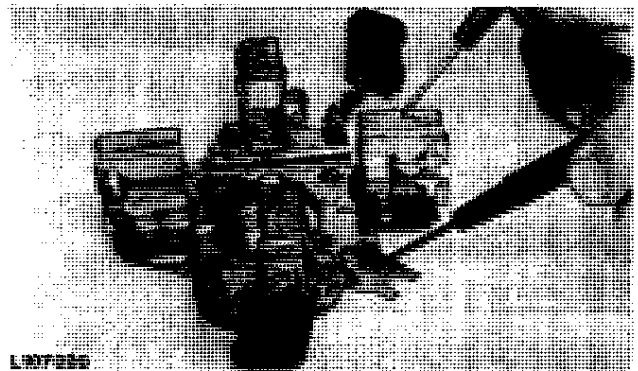
Check installed windings for shorted or open circuits.

L55571A-LA74020AE-091184

CHECKING CARBON BRUSH PLATE FOR GROUNDS

Test lamp must not light up; if it does, the carbon brush plate has a ground and must be replaced.

NOTE: Test voltage 40 volts AC.



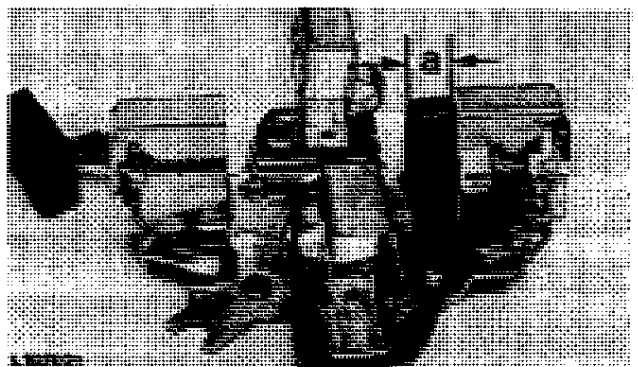
L107020

L107020-LA74020AE-091184

TESTING CARBON BRUSHES

The carbon brushes must move freely in their guides.

- a—Minimum length 7.5 mm (0.30 in.)



L107021

L107021-LB34030AE-010287

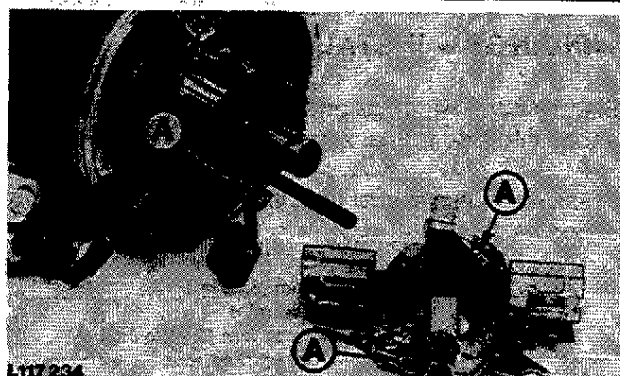
REPLACING CARBON BRUSHES

Cut off old brushes at end of brush strands.

Secure new brushes in bores (A).

Check easy movement of carbon brushes in brush holder.

NOTE: Screws and hex. nuts are included in the repair kit.

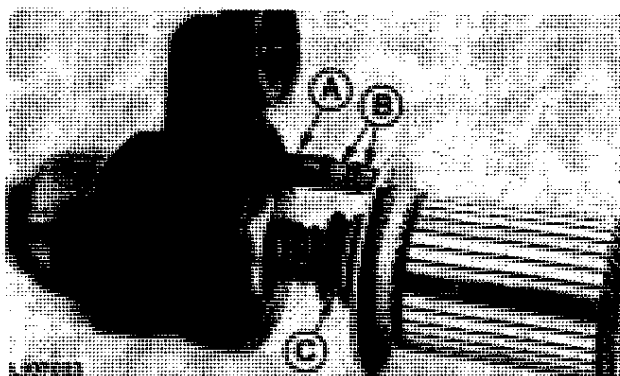


L117234-LB24025AE-010488

ENGAGING LEVER - INSTALLATION

Driving hub pins (B) of engaging lever (A) must engage in guide (C) of drive pinion.

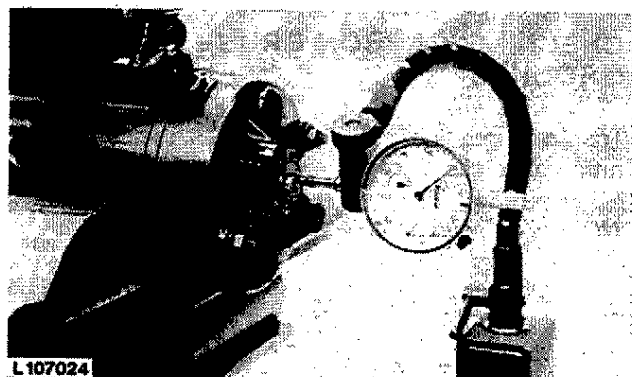
Screw in studs and slide field frame over armature.



L107023-LA74020AE-091184

TESTING ARMATURE END PLAY

End play 0.1 to 0.3 mm (0.003 to 0.012 in.).



L107024-LA74020AE-091184

Starting Motor

LUBRICATION OF STARTING MOTOR (BEFORE AND DURING ASSEMBLY)

Lubrication Point

Lubrication Instructions

Bushings

Soak new bushings for at least 1/2 hour before installation.

Armature shaft

Coat drive and commutator end journals of shaft, splines and bearing surfaces of clutch drive with a light film of grease.

Shift lever

Lubricate bearing surfaces and pivot bolts liberally with grease.

Solenoid switch

Coat inside of yoke and bolt threads with a light film of grease.

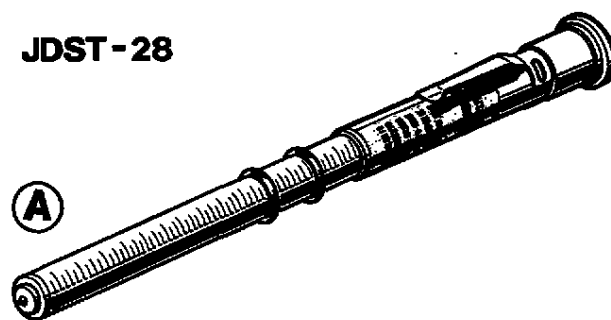
KEEP CONTACTS FREE FROM GREASE.

STARTER-LA74020EE-000285

SPECIAL TOOLS

JDST - 28

A-Belt tension gauge



L 114 923

L114923-LB2403DAE-010886

SPECIFICATIONS

Minimum length of carbon brushes	5 mm (0.2 in.)
When soldering new brushes, make sure they do not protrude beyond brush bracket by more than	10 mm (0.4 in.)
Minimum slip ring diameter	26.8 mm (1.055 in.)
Maximum radial runout of slip rings	0.03 mm (0.0012 in.)
Maximum radial runout of rotor	0.05 mm (0.002 in.)
Stator winding resistance	0.4 to 0.44 ohms
Rotor winding resistance	4.0 to 4.4 ohms

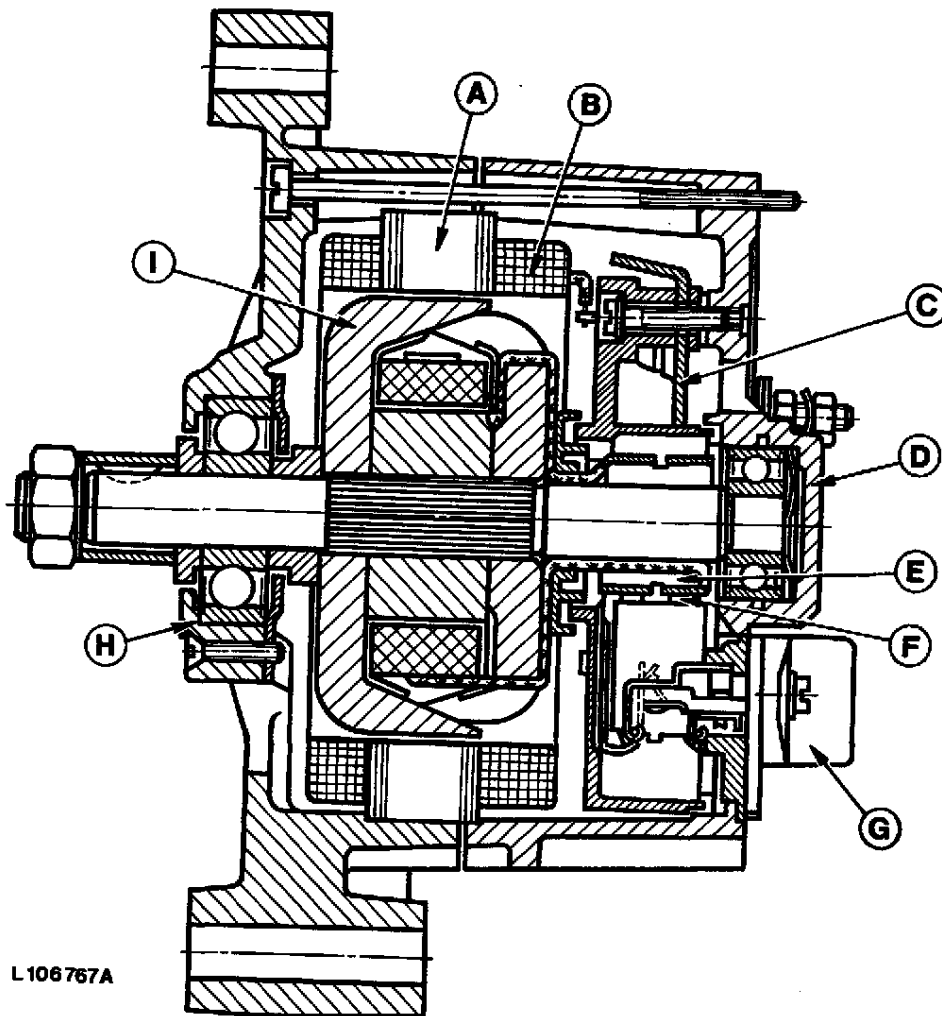
DREHGEN-LA74025AE-080285

TORQUES FOR HARDWARE

Belt pulley to alternator, hex. nut	35 to 45 Nm (25 to 32 ft-lb)
Drive end frame to end frame, cylinder screws	4 to 5.5 Nm (33 to 48 in-lb)

DREHGEN-LA74025BE-080285

ALTERNATOR, SECTIONAL VIEW



L106767A

A-Stator assembly
B-Stator winding
C-Heat sink

D-Bearing and end frame
E-Slip ring
F-Carbon brush

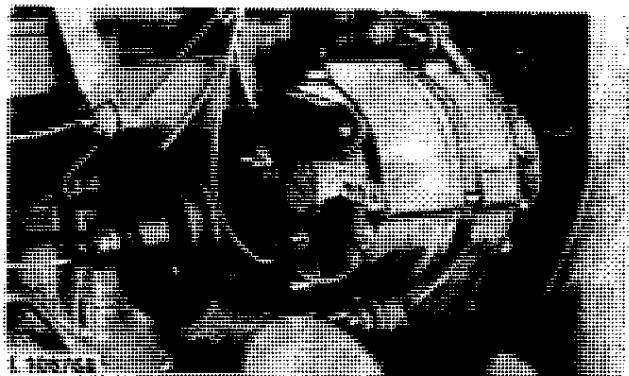
G-Regulator
H-Bearing and drive end frame
I-Rotor

L106767A-LB24030AE-010886

ALTERNATOR - REMOVAL

Disconnect ground straps of battery.

Disconnect cable from alternator and remove alternator.

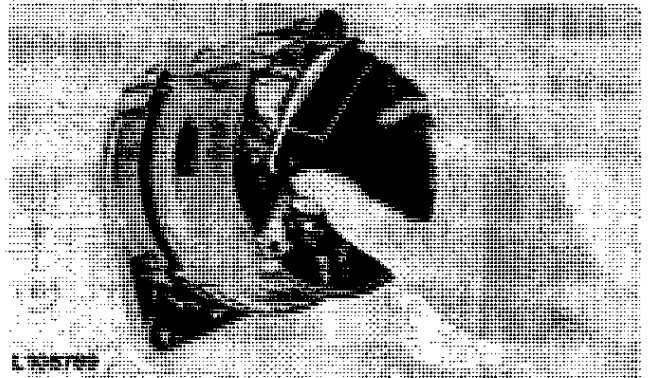


L106768-LA74025AE-091184

Alternator

REMOVING BRUSH HOLDER WITH REGULATOR

NOTE: Before disassembling alternator, first remove brush holder with regulator so carbon brushes will not break during disassembly.

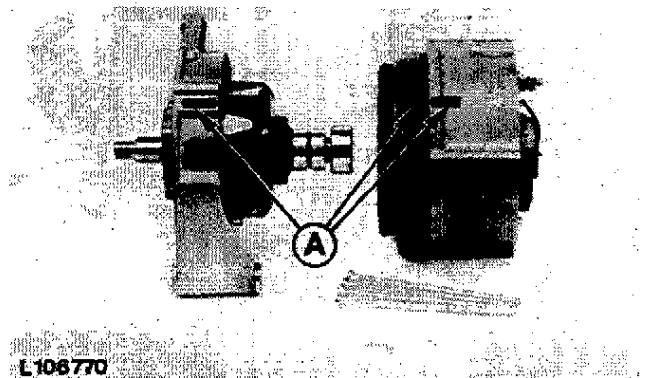


L106769-LA74025AE-001184

ALTERNATOR - DISASSEMBLY

Mark position of both bearing end frames and stator for later assembly (A).

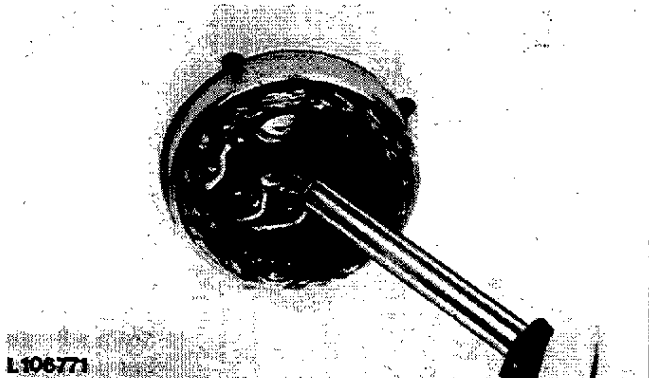
Press rotor out of drive end frame.



L106770-LA74025AE-091184

STATOR - REMOVAL

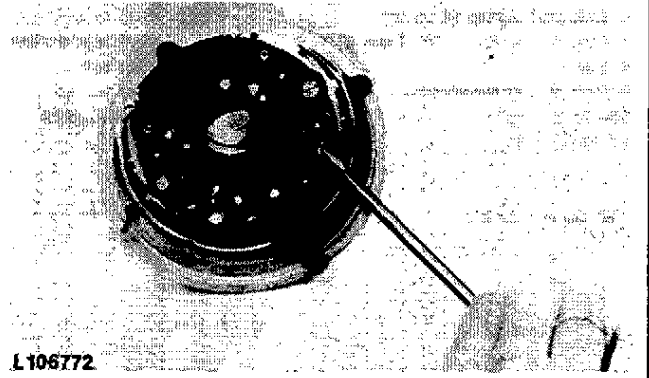
Unsolder stator windings from diode leads of diode plate.



L106771-LA74025AE-091184

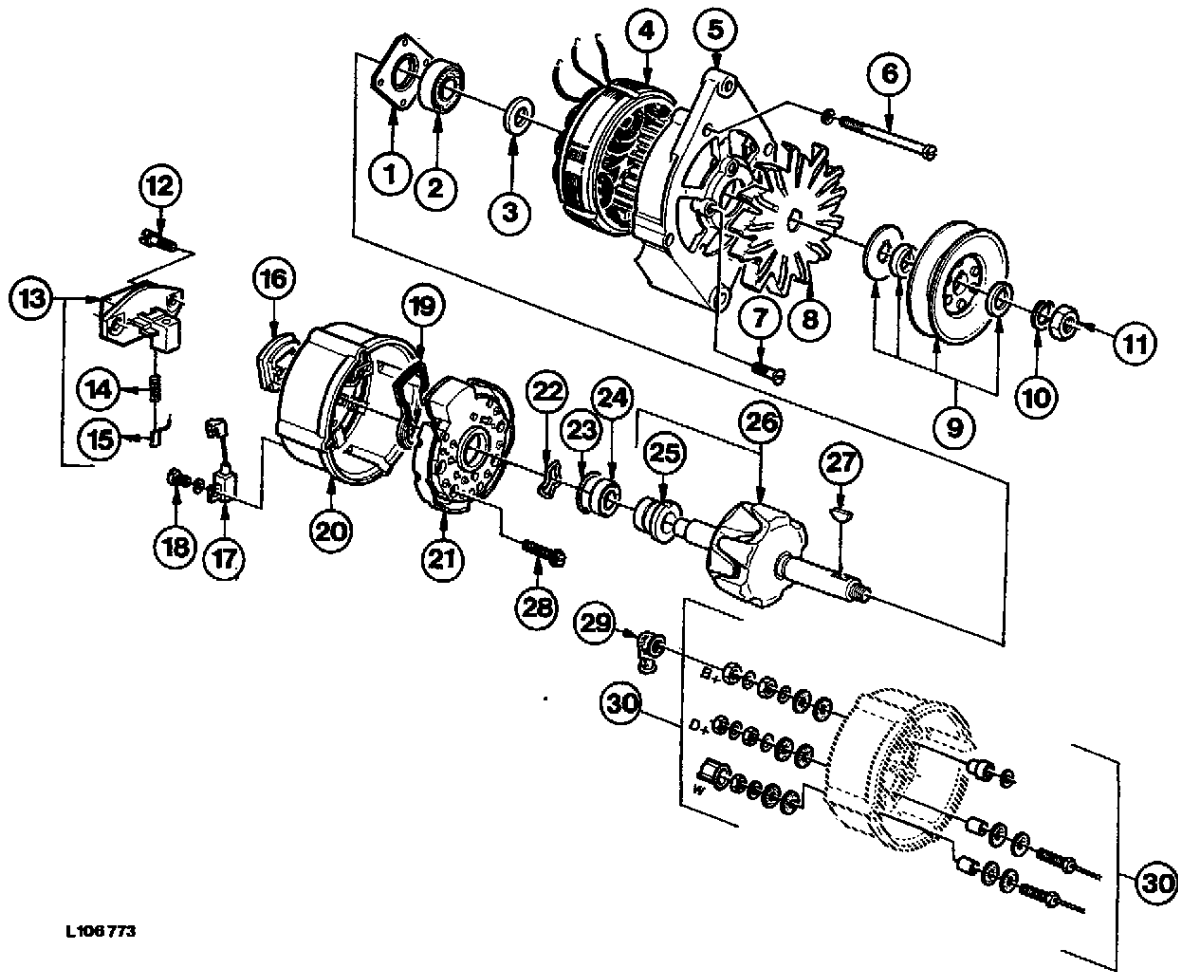
DIODE PLATE - REMOVAL

Unscrew hexagon nuts from connections "D+" and "B+".



L106772-LA74025AE-091184

ALTERNATOR, EXPLODED VIEW



L106773

- 1-Retaining plate
- 2-Ball bearing
- 3-Washer*
- 4-Stator coil
- 5-Drive end frame
- 6-Cylinder screw (4 used)
- 7-Countersunk screw (4 used)*
- 8-Fan
- 9-Belt pulley repair set
- 10-Snap ring*
- 11-Hex. nut*

- 12-Screw with spring washer (2 used)
- 13-Regulator with brush holder
- 14-Compression spring (2 used)
- 15-Carbon brush (2 used)
- 16-Gasket
- 17-Suppression capacitor
- 18-Cylinder screw
- 19-Gasket
- 20-End frame
- 21-Diode plate

- 22-Spring washer*
- 23-O-ring
- 24-Ball bearing
- 25-Slip ring
- 26-Rotor
- 27-Woodruff key*
- 28-Screw with spring washer (3 used)
- 29-Protective cap
- 30-Repair kit for terminals W, D+ and B+

* Rotor repair kit

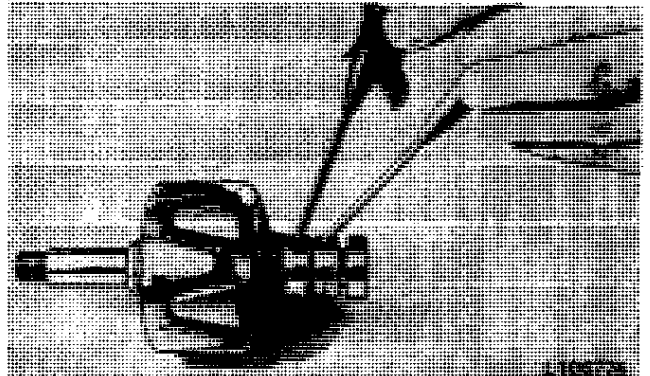
L106773-LA74025AE-080285

TESTING ROTOR FOR SHORT CIRCUIT

With a test lamp (e.g. Bosch EFAW 84): Test lamp must light brightly.

With an ohmmeter:
Ohmmeter indication must be between 4.0 and 4.4 ohms.

NOTE: Test voltage 25 to 40 volts AC.

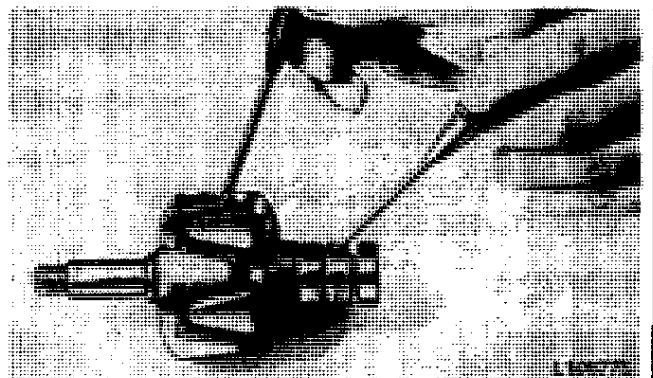


L106774-LA74025AE-091184

TESTING ROTOR FOR GROUNDS

Test lamp must not light up.

NOTE: Test voltage 25 to 40 volts AC.



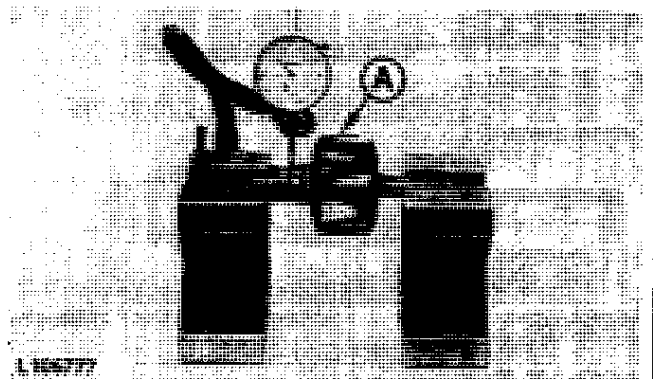
L106775-LA74025AE-091184

TESTING SLIP RINGS AND ROTOR SHAFT FOR RADIAL RUNOUT

Maximum radial runout of slip rings:
0.03 mm (0.0012 in.).

Maximum radial runout of rotor shaft:
0.05 mm (0.002 in.).

A—Rotor shaft test point

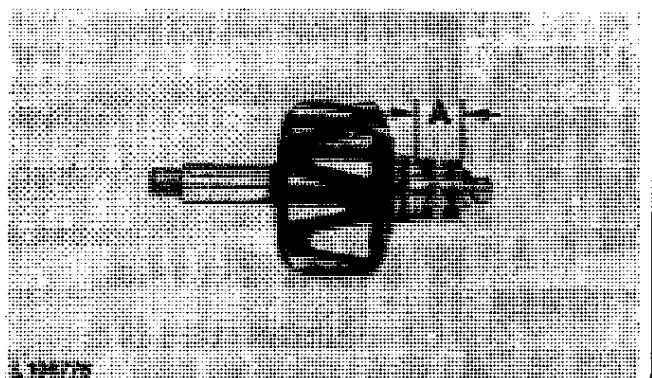


L106777-LA74025AE-091184

TURNING DOWN SLIP RINGS

Turn down slip rings to a length of 20 mm (0.79 in.) only; refer to (A).

Minimum diameter of slip rings 26.8 mm (1.055 in.).



L106776-LB34035AE-010287

TESTING STATOR COIL FOR SHORT CIRCUIT

Test phase outlets with respect to each other as follows: A and B; B and C; A and C

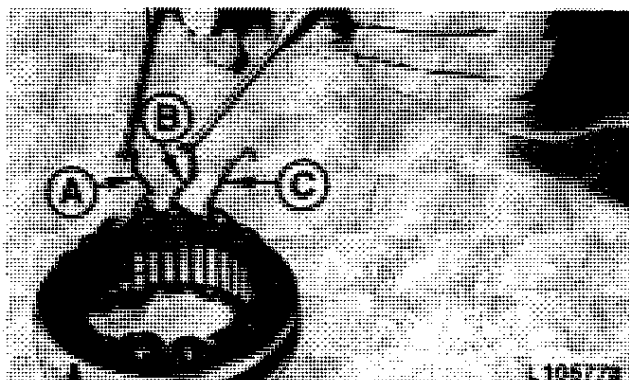
With test lamp:

Test lamp must light up brightly

With ohmmeter:

Indications between 0.4 and 0.44 ohms

NOTE: Test voltage 25 to 40 volts AC.

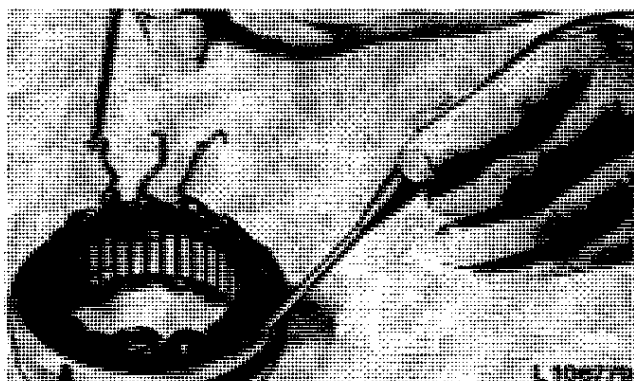


L106778-LA74025AE-091184

TESTING STATOR COIL FOR GROUNDS

Check phase outlets consecutively. Test lamp must not light up.

NOTE: Test voltage 25 to 40 volts AC.



L106779-LA74025AE-091184

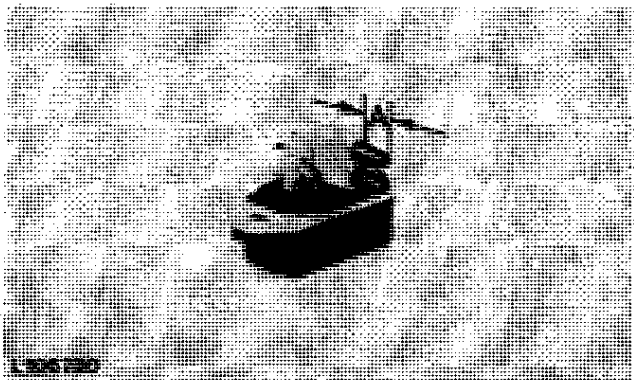
REPLACING CARBON BRUSHES

Replace carbon brushes if dimension (A) is less than 5 mm (0.2 in.).

Solder new carbon brushes in such a way that dimension (A) does not exceed 10 mm (0.4 in.).

NOTE: When soldering copper lead, make sure that the solder (rosin/tin solder only) does not seep into the copper leads.

IMPORTANT: The service life of carbon brushes and ball bearings are matched to each other. Therefore, always replace ball bearings when renewing carbon brushes. Before installing new carbon brushes, slip rings must be checked and turned down if necessary.



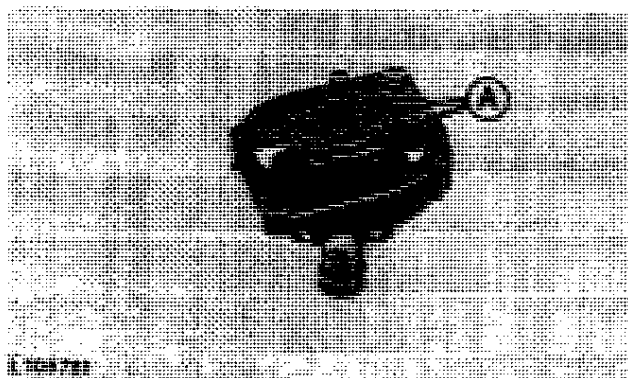
L106780-LA74025AE-091184

REPLACING BALL BEARINGS

Remove attaching screws (A) of drive end frame retaining plate and force rotor out of drive end frame.

Pull off rotor ball bearing.

Removed ball bearings must be replaced.



L106781-LB2403DAE-010888

CHECKING POSITIVE DIODES

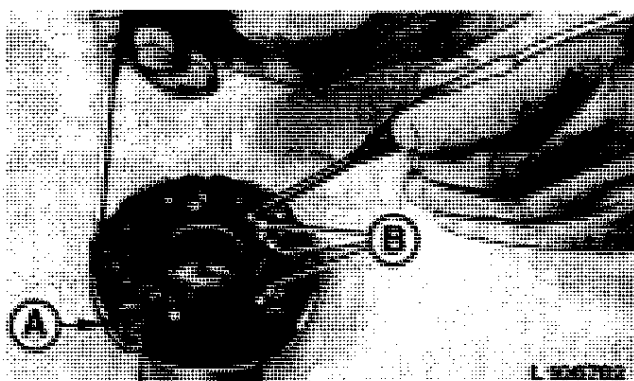
Consecutively place positive test probe of a test lamp to positive heat sink (A) and negative test probe to leads (B) of diodes.

Test lamp must not light up.

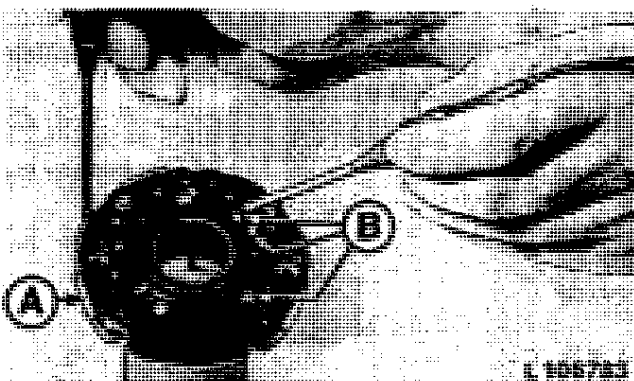
If no fault is found in the test described above, carry out this test with reversed polarity (see illustration).

Test lamp must light up brightly.

NOTE: Test voltage 6 to 12 volts DC.



L 106782



L 106783

L106782,L106783-LA74025AE-0911B4

CHECKING NEGATIVE DIODES

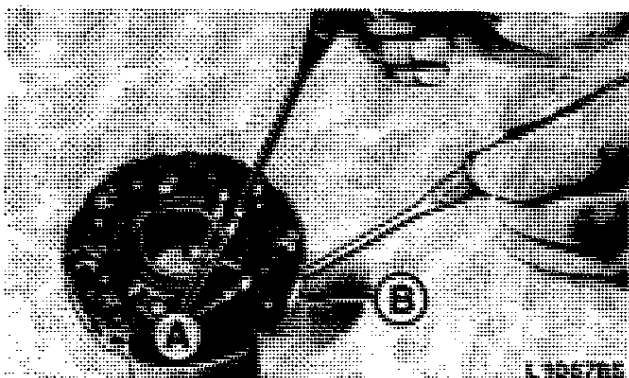
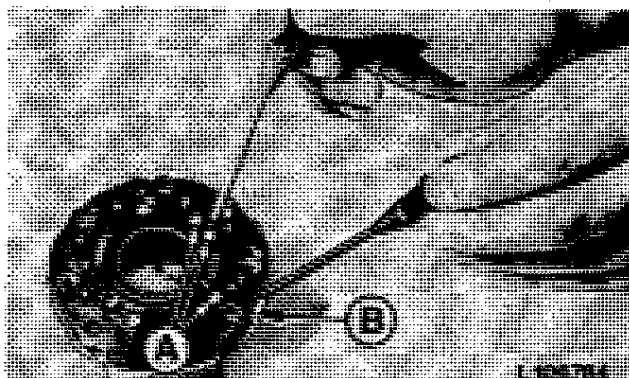
Consecutively place negative test probe of a test lamp to negative heat sink (B) and positive test probe to leads (A) of diodes.

Test lamp must not light up.

If no fault is found in test described above, carry out this test with reversed polarity (see illustration).

Test lamp must light up brightly.

NOTE: Test voltage 6 to 12 volts DC.



L106784, L106785-LA74025AE-091184

TESTING EXCITING DIODES

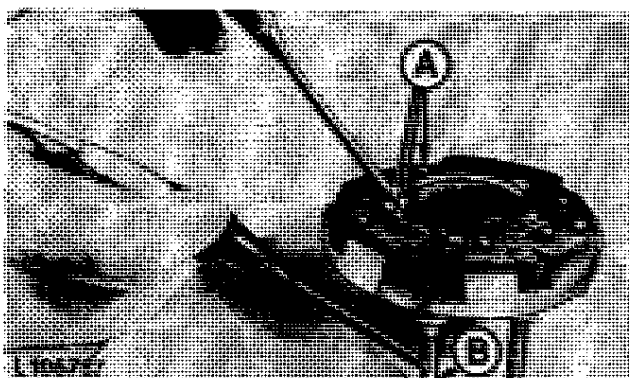
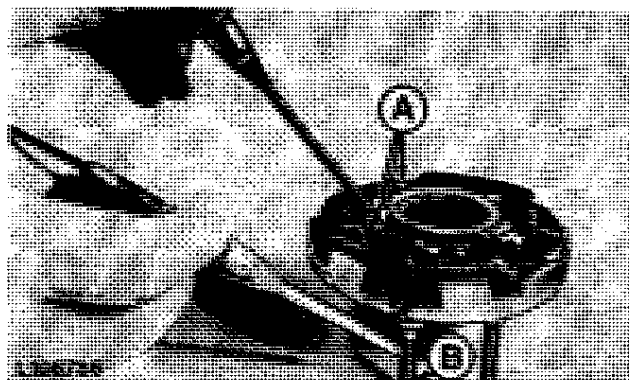
Place positive test probe of a test lamp on connection "D+" (B) and negative probe onto diode leads (A).

Test lamp must not light up.

If no fault is found in test described above, carry out this test with reversed polarity (see illustration).

Test lamp must light up brightly.

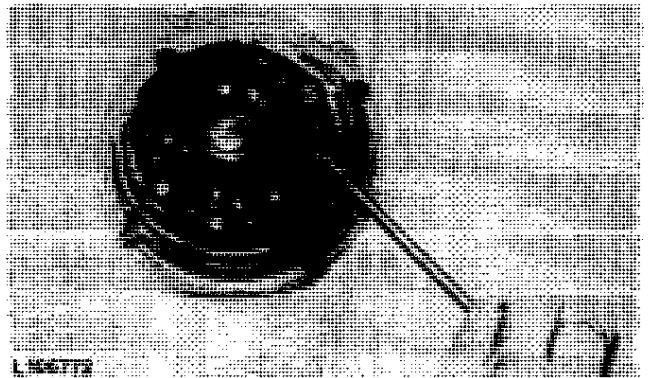
NOTE: Test voltage 6 to 12 volts DC.



L106786, L106787-LA74025AE-091184

DIODE PLATE INSTALLATION

Pay attention to perfect insulation of connections "B+", "D+" and the positive diode heat sink in respect of end frame.

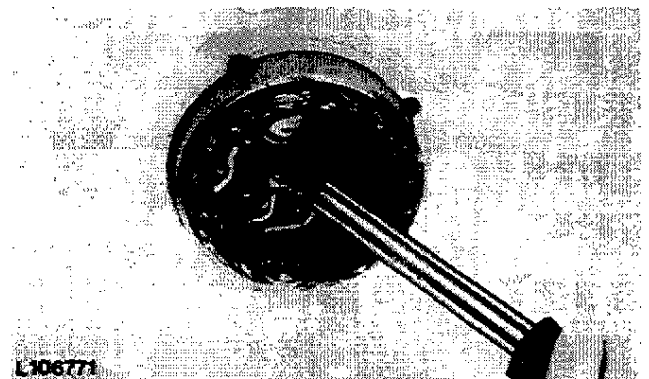


L106772-LA74025BE-091184

SOLDERING STATOR COILS

Make sure that no solder seeps inside diode plate.

Avoid overheating diodes.

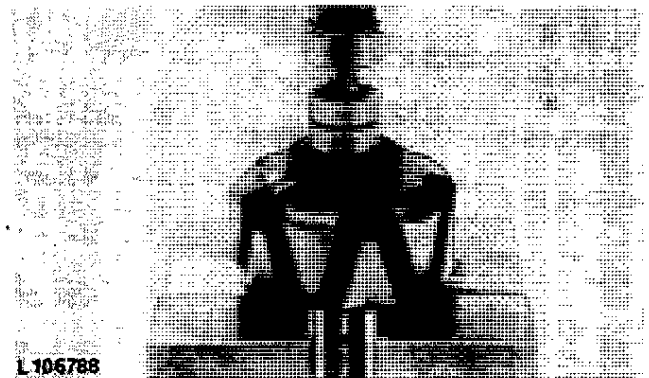


L106771-LA74025BE-091184

PRESSING BALL BEARING ONTO ROTOR SHAFT

For pressing on, use a sleeve which presses onto the ball bearing inner race.

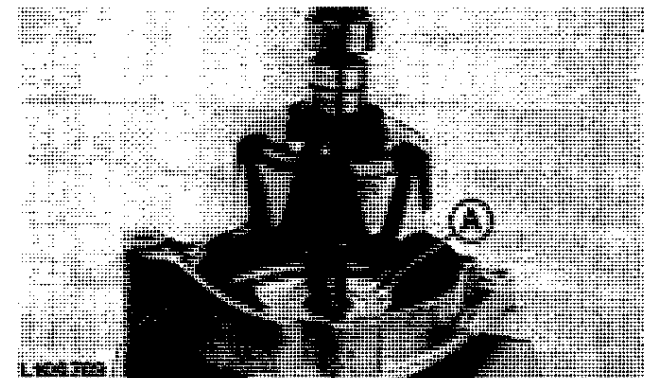
NOTE: Never press onto drive end frame.



L106788-LA74025AE-091184

PRESSING ROTOR INTO DRIVE END FRAME

Use a new retaining plate (A) when installing a new ball bearing.

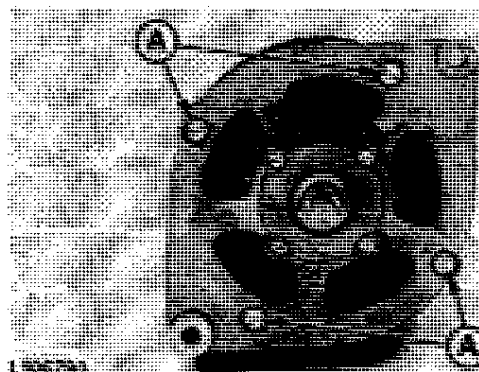


L106789-LA74025AE-091184

ALTERNATOR – ASSEMBLY

Apply a high temperature bearing grease such as Bosch Ft70v1 to end frame bearing seat. Place spring washer end in frame and carefully join both alternator halves, paying attention to markings.

Tighten screws (A) with 4 to 5.5 Nm (33 to 48 in-lb).

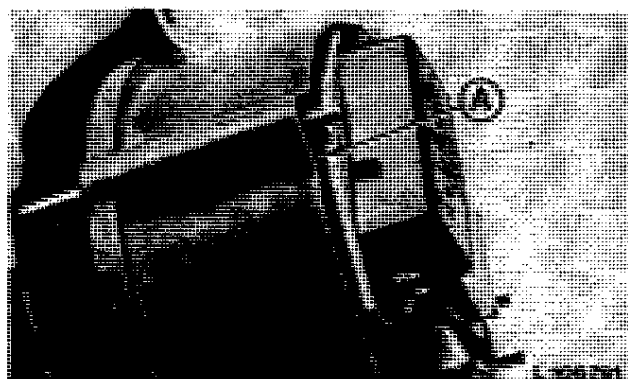


L106792

L106790-LA74025AE-091184

INSTALLING BRUSH HOLDER WITH REGULATOR

Carefully insert brush holder with regulator. Make sure that gasket (A) fits correctly.

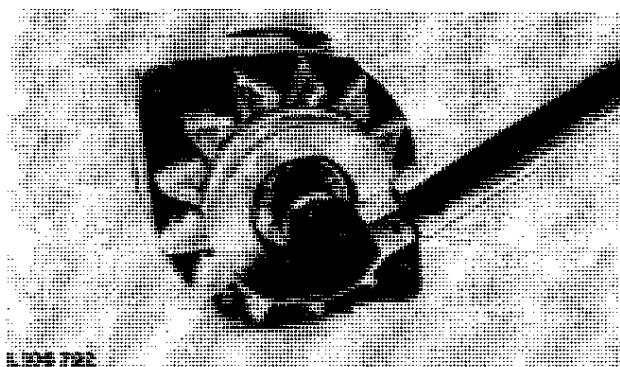


L106791

L106791-LA74025AE-091184

FAN AND BELT PULLEY – INSTALLATION

Tighten securing nut with 35 to 45 Nm (25 to 32 ft-lb).



L106792

L106792-LA74025AE-091184

OUTPUT TEST

A corresponding test rig is required for the output test. The adjacent figures are output test target figures (alternator temperature 60°C (140°F); test with regulator).

A—Adjusted load (amperes)
B—Alternator speed (max. rpm)

(A)			(B)
55A	70A	85A	
23	28	30	1500
55	70	85	6000

L119644

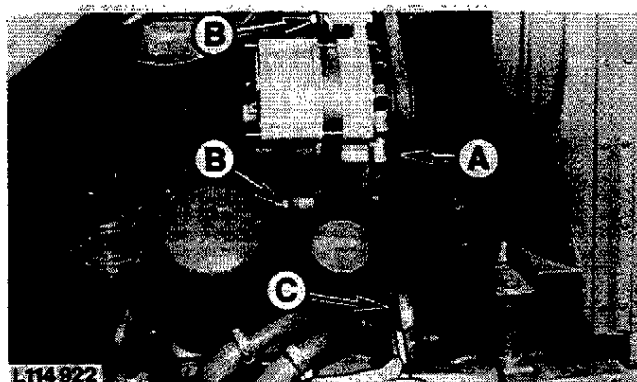
L119644-LB24030AE-010488

FAN BELT - ADJUSTMENT

Using belt tension gauge JDST-28 (C), check tension of fan belt (A). Tension fan belt so that it can be depressed 19 mm (3/4 in.) when applying 90 N (20 lb) pressure in center of belt between crankshaft and alternator.

To tension belt, loosen both screws (B) and pull alternator outwards at the top. Then retighten screws.

Replacement belts must be run in for at least 10 to 15 minutes. Then check belt tension and retension belt if required.



L114922-LB24030AE-010886

Section 50

POWER TRAIN – REPAIR

NOTE: Front wheel drive axles for these tractors have model designations APL-325, APL-325N and APL-735 and are dealt with in Component Technical Manual CTM-4422 "Front Wheel Drive Axles – APL-300 and APL-700 Series".

05 – CLUTCH OPERATING SYSTEMS

		2250	2450	2650	2650 N	2850
Specifications	05-1	x	x	x	x	x
Torques for hardware	05-1	x	x	x	x	x
Hydraulically Operated Clutch						
– Draining clutch operating system	05-2	x	x	x		x
– Removing dash panel at panel support	05-2	x	x	x		x
– Removing clutch pedal	05-2	x	x	x		x
– Upper clutch operating system, exploded view	05-3	x	x	x		x
– Removing slave cylinder	05-4	x	x	x		x
– Slave cylinder, sectional view	05-4	x	x	x		x
– Removing throw-out bearing	05-5	x	x	x		x
– Removing ring piston	05-5	x	x	x		x
– Removing guide sleeve	05-5	x	x	x		x
– Slave cylinder, exploded view	05-6	x	x	x		x
– Repairing slave cylinder	05-7	x	x	x		x
– Installing slave cylinder	05-7	x	x	x		x
– Master cylinder, sectional view	05-8	x	x	x		x
– Disassembling master cylinder	05-8	x	x	x		x
– Master cylinder, exploded view	05-9	x	x	x		x
– Adjusting rear stop screw	05-10	x	x	x		x
– Adjusting preliminary piston rod clearance	05-10	x	x	x		x
– Preliminary adjustment of front stop screw	05-10	x	x	x		x
– Topping up with brake fluid	05-11	x	x	x		x

KRAFTUBTRG-LB35001AE-010988

05 – CLUTCH OPERATING SYSTEMS (CONTD.)**Hydraulically Operated Clutch (Contd.)**

		2250	2450	2650	2650 N	2850
– Bleeding clutch operating system	05-12	x	x	x		x
– Adjusting master cylinder piston	05-13	x	x	x		x
– Adjusting front stop screw	05-14	x	x	x		x
– Checking clutch operating system	05-14	x	x	x		x

Mechanically Operated Clutch

– Clutch operating system, exploded view	05-15	x	x	x	x	x
– Removing clutch operating system	05-16	x	x	x	x	x
– Installing inner bushing and oil seal	05-16	x	x	x	x	x
– Installing outer oil seal and bushing	05-16	x	x	x	x	x
– Installing clutch fork and throw-out bearing	05-17	x	x	x	x	x
– Adjusting clutch pedal free travel	05-18	x	x	x	x	x

10 – SINGLE-STAGE ENGINE CLUTCH

Special tools	10-1	x	x	x	x	x
Specifications	10-1	x	x	x	x	x
Torques for hardware	10-2	x	x	x	x	x
Engine clutch (F & S), sectional view	10-3	x	x		x	
Engine clutch (LUK), sectional view	10-4			x		x
Functional test of engine clutch	10-5	x	x	x	x	x
Measuring clearance between pressure plate and flywheel friction face	10-6	x	x	x	x	x
Removing engine clutch	10-6	x	x	x	x	x
Checking thickness of clutch disk	10-7	x	x	x	x	x
Checking wear of pressure plate	10-8	x	x	x	x	x
Checking flywheel	10-9	x	x	x	x	x
Checking wear of flywheel friction face	10-9	x	x	x	x	x
Checking disengagement movement of pressure plate	10-10	x	x	x	x	x
Checking torsion damper of independent PTO	10-10	x	x	x	x	x

		2250	2450	2650	2650 N	2850
10 – SINGLE-STAGE ENGINE CLUTCH (Contd.)						
F & S clutch assembly, exploded view (repair kits)	10-11	x	x		x	
LUK clutch assembly, exploded view (repair kits)	10-12			x		x
Assembling pressure plate and housing (F & S)	10-13	x	x		x	
Assembling pressure plate and housing (LUK)	10-13			x		x
Installing clutch disk	10-13	x	x	x	x	x
Installing clutch assembly	10-14	x	x	x	x	x
Installing clutch throw-out ring	10-15	x	x	x	x	x
Final assembly	10-15	x	x	x	x	x
15 – DUAL-STAGE ENGINE CLUTCH						
Special tools	15-1	x	x			
Specifications	15-1	x	x			
Torques for hardware	15-3	x	x			
Dual-stage engine clutch, sectional view	15-3	x	x			
Removing dual-stage engine clutch	15-4	x	x			
Disassembling clutch assembly	15-4	x	x			
Checking thickness of clutch disks	15-4	x	x			
Checking base plate and pressure plates	15-5	x	x			
Checking flywheel	15-6	x	x			
Dual-stage engine clutch, exploded view	15-7	x	x			
Installing release levers	15-7	x	x			
Assembling clutch	15-8	x	x			
Adjusting release levers	15-9	x	x			
Installing flywheel	15-10	x	x			
Installing clutch assembly	15-10	x	x			

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20 – HI-LO SHIFT UNIT						
Special tools	20-1	x	x	x	x	x
Specifications	20-1	x	x	x	x	x
Torques for hardware	20-3	x	x	x	x	x
Hi-Lo shift unit, sectional view	20-4	x	x	x	x	x
Removing Hi-Lo shift unit	20-5	x	x	x	x	x
Removing planetary gear	20-5	x	x	x	x	x
Disassembling Lo brake	20-5	x	x	x	x	x
Disconnecting clutch drum from planet pinion carrier	20-5	x	x	x	x	x
Disassembling Hi clutch	20-6	x	x	x	x	x
Removing Hi clutch piston	20-6	x	x	x	x	x
Repairing control valve assembly	20-6	x	x	x	x	x
Hi-Lo shift unit, exploded view	20-7	x	x	x	x	x
Transmission shift cover and control valve assembly, exploded view	20-8	x	x	x	x	x
Installing manifold cover	20-9	x	x	x	x	x
Replacing brake housing or brake piston seal rings	20-9	x	x	x	x	x
Installing brake piston	20-9	x	x	x	x	x
Assembling Lo brake	20-9	x	x	x	x	x
Compressing Lo brake Belleville springs	20-10	x	x	x	x	x
Installing piston	20-10	x	x	x	x	x
Installing Hi clutch Belleville springs	20-10	x	x	x	x	x
Compressing Hi clutch Belleville springs	20-10	x	x	x	x	x
Assembling planet pinion carrier	20-11	x	x	x	x	x
Installing clutch disks	20-11	x	x	x	x	x
Securing planet pinion carrier to clutch drum	20-11	x	x	x	x	x
Inserting planetary gear into brake housing	20-11	x	x	x	x	x
Installing Hi-Lo shift unit	20-12	x	x	x	x	x

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25 – CREEPER TRANSMISSION						
Specifications	25-1	x	x	x	x	x
Torques for hardware	25-1	x	x	x	x	x
Creeper transmission, sectional view	25-2	x	x	x	x	x
Removing creeper transmission	25-3	x	x	x	x	x
Removing shifter rod and shifter fork	25-3	x	x	x	x	x
Removing bearing quill	25-3	x	x	x	x	x
Removing double gear	25-4	x	x	x	x	x
Removing transmission input shaft from housing	25-4	x	x	x	x	x
Removing synchronizer assembly	25-4	x	x	x	x	x
Creeper transmission, exploded view	25-5	x	x	x	x	x
Control lever linkage, exploded view	25-6	x	x	x	x	x
Assembling synchronizer assembly	25-6	x	x	x	x	x
Installing synchronizer assembly	25-7	x	x	x	x	x
Installing transmission input shaft and gears	25-7	x	x	x	x	x
Determining taper roller bearing preload	25-7	x	x	x	x	x
Installing double gear	25-8	x	x	x	x	x
Installing bearing quill	25-8	x	x	x	x	x
Installing detent ball and spring in hub carrier	25-8	x	x	x	x	x
Installing shifter rod and shifter fork	25-8	x	x	x	x	x
Installing locking pin	25-9	x	x	x	x	x
Installing creeper transmission assembly	25-9	x	x	x	x	x

26 – HYDROSTATIC CREEPER TRANSMISSION

Special tool (self-manufactured)	26-1	x	x	x		x
Specifications	26-2	x	x	x		x
Torques for hardware	26-2	x	x	x		x
Hydrostatic creeper transmission, sectional view	26-3	x	x	x		x
Draining transmission oil	26-4	x	x	x		x
Disconnecting hydraulic lines	26-4	x	x	x		x
Removing proportional flow control valve	26-4	x	x	x		x
Removing shifting valve	26-5	x	x	x		x
Removing u.j. drive shaft	26-5	x	x	x		x
Removing hydraulic motor	26-5	x	x	x		x

**26 – HYDROSTATIC CREEPER TRANSMISSION
(Contd.)**

		2250	2450	2650	2650 N	2850
Removing creeper transmission	26-6	x	x	x		x
Removing shift cover	26-6	x	x	x		x
Removing shift cylinder	26-6	x	x	x		x
Removing bearing quill	26-7	x	x	x		x
Removing drive shaft	26-7	x	x	x		x
Removing drive gear	26-7	x	x	x		x
Assembling creeper transmission	26-7	x	x	x		x
Hydrostatic creeper transmission, exploded view	26-8	x	x	x		x
Adjusting drive shaft taper roller bearings	26-9	x	x	x		x
Adjusting shifter fork	26-9	x	x	x		x
Installing shift cylinder	26-10	x	x	x		x
Attaching shift cover	26-10	x	x	x		x
Installing hydraulic motor	26-10	x	x	x		x
Installing switching valve	26-11	x	x	x		x
Sliding back-up ring and plastic bushing onto drive shaft	26-11	x	x	x		x
Installing creeper transmission	26-11	x	x	x		x
Installing u.j. drive shaft	26-11	x	x	x		x
Final assembly	26-12	x	x	x		x

30 – TRANSMISSION – CONSOLE SHIFT

Torques for hardware	30-1	x	x	x		x
Removing shift console	30-1	x	x	x		x
Removing shift lever assembly	30-2	x	x	x		x
Preparatory work	30-3	x	x	x		x
Removing shifter shafts	30-3	x	x	x		x
Transmission shift linkage, exploded view	30-4	x	x	x		x
Installing bushings and oil seals	30-5	x	x	x		x
Installing bottom shifter shafts	30-5	x	x	x		x
Installing shifter shafts	30-6	x	x	x		x

30 – TRANSMISSION – CONSOLE SHIFT (Contd.)

		2250	2450	2650	2650 N	2850
Installing detent balls	30-6	x	x	x		x
Adjusting shifter fork for 3rd and 4th gear	30-7	x	x	x		x
Adjusting shifter fork for 1st and 2nd gear	30-7	x	x	x		x
Installing top shifter shafts	30-8	x	x	x		x
Adjusting shifter forks for ranges II, I and reverse	30-9	x	x	x		x
Final assembly	30-10	x	x	x		x
Assembling shift lever assembly	30-11	x	x	x		x
Installing connecting rods	30-12	x	x	x		x
Adjusting connecting rods	30-12	x	x	x		x

35 – TRANSMISSION – CENTER SHIFT

Torques for hardware	35-1	x	x	x	x	x
Preparatory work	35-1	x	x	x	x	x
With Synchronized Transmission						
– Removing shifter shafts	35-1	x	x	x	x	x
– Installing shifter shafts	35-2	x	x	x	x	x
– Installing detent balls	35-2	x	x	x	x	x
– Adjusting shifter fork for 3rd and 4th gear	35-3	x	x	x	x	x
– Adjusting shifter fork for 1st and 2nd gear	35-3	x	x	x	x	x
– Adjusting shifter fork for ranges II, I and reverse	35-4	x	x	x	x	x
With Collar Shift Transmission						
– Removing shifter shafts	35-5	x	x	x		
– Shifting mechanism	35-6	x	x	x		
– Installing shifter shafts	35-7	x	x	x		
– Installing detent balls	35-7	x	x	x		
– Installing shifter shaft for 1st and 2nd gear	35-7	x	x	x		
– Installing shifter shaft for 3rd and 4th gear	35-8	x	x	x		
Installing shifter shaft – range I	35-8	x	x	x		
Installing shifter shaft – range II	35-8	x	x	x		
Final assembly	35-9	x	x	x	x	x
Assembling shift lever assembly	35-9	x	x	x	x	x

		2250	2450	2650	2650 N	2850
40 – SYNCHRONIZED TRANSMISSION AND TRANSMISSION OIL PUMP						
Special tools	40-1	x	x	x	x	x
Special tool (self-manufacture)	40-1	x	x	x	x	x
Specifications	40-2	x	x	x	x	x
Adjusting cone point of differential drive shaft	40-3	x	x	x	x	x
Torques for hardware	40-5	x	x	x	x	x
Synchronized transmission – preparatory work ..	40-6	x	x	x	x	x
Removing transmission bearing quill	40-6	x	x	x	x	x
Removing countershaft	40-6	x	x	x	x	x
Removing differential drive shaft	40-7	x	x	x	x	x
Removing reverse gear	40-8	x	x	x	x	x
Installing reverse gear	40-8	x	x	x	x	x
Removing intermediate gear	40-8	x	x	x	x	x
Replacing intermediate shaft needle bearings ...	40-8	x	x	x	x	x
Installing intermediate shaft	40-9	x	x	x	x	x
Determining intermediate shaft taper roller bearing preload	40-9	x	x	x	x	x
Cone point adjustment	40-10	x	x	x	x	x
Differential drive shaft, exploded view	40-11	x	x	x	x	x
Replacing needle bearing race	40-11	x	x	x	x	x
Installing differential drive shaft	40-12	x	x	x	x	x
Adjusting differential drive shaft preload	40-13	x	x	x	x	x
Adjusting differential drive shaft rolling drag torque	40-13	x	x	x	x	x
Installing differential	40-14	x	x	x	x	x
Replacing needle bearing of hollow drive shaft	40-14	x	x	x	x	x
Checking synchronizer rings	40-14	x	x	x	x	x
Countershaft, exploded view	40-15	x	x	x	x	x
Assembling synchronizer assembly	40-15	x	x	x	x	x
Assembling transmission drive shaft	40-16	x	x	x	x	x
Disassembling range shaft	40-17	x	x	x	x	x
Assembling range shaft	40-18	x	x	x	x	x
Adjusting range shaft preload	40-19	x	x	x	x	x
Installing countershaft	40-20	x	x	x	x	x
Installing bearing quill	40-20	x	x	x	x	x
Installing snap ring	40-21	x	x	x	x	x
Installing transmission bearing quill	40-21	x	x	x	x	x
Adjusting countershaft preload	40-22	x	x	x	x	x
Measuring countershaft rolling drag torque	40-22	x	x	x	x	x
Final assembly	40-22	x	x	x	x	x

**40 – SYNCHRONIZED TRANSMISSION AND
TRANSMISSION OIL PUMP (Contd.)**

		2250	2450	2650	2650 N	2850
Transmission oil pump – preparatory work	40-23	x	x	x	x	x
Removing transmission oil pump	40-23	x	x	x	x	x
Replacing needle bearings	40-23	x	x	x	x	x
Separating pump housing	40-23	x	x	x	x	x
Assembling hollow drive shaft	40-24	x	x	x	x	x
Installing gears	40-24	x	x	x	x	x
Joining transmission oil pump halves	40-24	x	x	x	x	x
Installing O-ring	40-24	x	x	x	x	x
Installing transmission oil pump	40-25	x	x	x	x	x
Final assembly	40-25	x	x	x	x	x

**45 – COLLAR SHIFT TRANSMISSION
AND TRANSMISSION OIL PUMP**

Special tools	45-1	x	x	x		
Specifications	45-1	x	x	x		
Torques for hardware	45-3	x	x	x		
Preparatory work	45-4	x	x	x		
Removing transmission cover	45-4	x	x	x		
Removing countershaft	45-4	x	x	x		
Removing transmission drive shaft bearing quill	45-5	x	x	x		
Removing differential drive shaft	45-5	x	x	x		
Differential drive shaft, exploded view	45-6	x	x	x		
Installing differential drive shaft	45-7	x	x	x		
Adjusting cone point	45-7	x	x	x		
Adjusting differential drive shaft preload	45-8	x	x	x		
Tightening hex. nut of differential drive shaft	45-8	x	x	x		
Installing differential	45-8	x	x	x		

**45 – COLLAR SHIFT TRANSMISSION AND
TRANSMISSION OIL PUMP (Contd.)**

		2250	2450	2650	2650 N	2850
Transmission drive shaft, exploded view	45-9	x	x	x		
Installing transmission drive shaft	45-10	x	x	x		
Adjusting transmission drive shaft end play	45-10	x	x	x		
Countershaft, exploded view	45-11	x	x	x		
Replacing countershaft ball bearings	45-12	x	x	x		
Installing countershaft	45-12	x	x	x		
Attaching transmission cover	45-12	x	x	x		
Installing transmission oil cup	45-13	x	x	x		
Final assembly	45-13	x	x	x		
Transmission oil pump – preparatory work	45-14	x	x	x		
Removing transmission oil pump	45-14	x	x	x		
Replacing needle bearings	45-14	x	x	x		
Separating pump housing	45-14	x	x	x		
Transmission oil pump, exploded view	45-15	x	x	x		
Assembling hollow drive shaft	45-16	x	x	x		
Installing gears	45-16	x	x	x		
Joining transmission oil pump halves	45-16	x	x	x		
Installing transmission oil pump	45-16	x	x	x		
Final assembly	45-17	x	x	x		

50 – DIFFERENTIAL

Specifications	50-1	x	x	x	x	x
Torques for hardware	50-1	x	x	x	x	x
Preparatory work	50-2	x	x	x	x	x
Removing shifter shaft lever	50-2	x	x	x	x	x
Removing differential lock	50-2	x	x	x	x	x
Removing differential	50-2	x	x	x	x	x
Checking thrust washers	50-3	x	x	x	x	x
Assembling differential housing	50-3	x	x	x	x	x
Installing differential	50-3	x	x	x	x	x
Adjusting preload	50-4	x	x	x	x	x
Adjusting backlash	50-4	x	x	x	x	x
Installing differential lock	50-5	x	x	x	x	x
Final assembly	50-5	x	x	x	x	x

		2250	2450	2650	2650N	2850
55 – FINAL DRIVES						
Special tools (self-manufacture)	55-1	x	x	x	x	x
Specifications	55-1	x	x	x	x	x
Torques for hardware	55-2	x	x	x	x	x
Right-hand final drive assembly, sectional view (standard type)	55-3	x	x			
Right-hand final drive assembly, sectional view (heavy-duty type)	55-4	x	x	x	x	x
Removing final drives	55-5	x	x	x	x	x
Removing planet pinion carrier	55-5	x	x	x	x	x
Removing snap ring from planet pinion carrier	55-5	x	x	x	x	x
Removing rear axle	55-5	x	x	x	x	x
Final drive assembly, exploded view (standard type)	55-6	x	x			
Final drive assembly, exploded view (heavy-duty type)	55-7	x	x	x	x	x
Positioning rear axle upright	55-8	x	x	x	x	x
Installing outer oil seal and taper roller bearing cone	55-8	x	x	x	x	x
Assembling final drive	55-9	x	x	x	x	x
Installing planet pinions	55-9	x	x	x	x	x
Adjusting rolling drag torque	55-10	x	x	x	x	x
Inserting locking plate	55-10	x	x	x	x	x
Final assembly	55-11	x	x	x	x	x
60 – INDEPENDENT PTO SHAFTS						
Special tools	60-1	x	x	x	x	x
Specifications	60-1	x	x	x	x	x
Torques for hardware	60-3	x	x	x	x	x
Independent 540 rpm PTO, sectional view (collar shift transmission)	60-4	x	x	x		
Independent 540 rpm PTO, sectional view (synchronized transmission)	60-5	x	x	x	x	x
Removing PTO shaft with bearing quill (540 rpm PTO)	60-6	x	x	x	x	x
540 rpm PTO (collar shift transmission), exploded view	60-7	x	x	x		
540 rpm PTO (synchronized transmission), exploded view	60-8	x	x	x	x	x

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60 – INDEPENDENT PTO SHAFTS (Contd.)						
Adjusting taper roller bearings	60-9	x	x	x	x	x
Installing bearing quill with PTO stub shaft	60-10	x	x	x	x	x
Independent 540/1000 rpm PTO (interchangeable stub shaft), sectional view	60-11	x	x	x	x	x
Independent 540/1000 rpm PTO (handshift), sectional view	60-12	x	x	x	x	x
540/1000 rpm PTO shift linkage (handshift), sectional view	60-13	x	x	x	x	x
Preparing to remove PTO stub shaft with gear (540/1000 rpm PTO)	60-13	x	x	x	x	x
Removing bearing quill with PTO stub shaft ...	60-14	x	x	x	x	x
Removing 540 and 1000 rpm shifter shaft	60-14	x	x	x	x	x
Removing snap ring from 540/1000 rpm PTO stub shaft with gear	60-14	x	x	x	x	x
Removing 540/1000 rpm PTO stub shaft with gear	60-14	x	x	x	x	x
540/1000 rpm PTO (interchangeable stub shaft), exploded view	60-15	x	x	x	x	x
540/1000 rpm PTO (handshift), sectional view	60-16	x	x	x	x	x
Installing double gear and countershaft (540/1000 rpm PTO)	60-17	x	x	x	x	x
Installing snap ring (540/1000 rpm PTO)	60-17	x	x	x	x	x
Installing shifter shaft (540/1000 rpm PTO)	60-17	x	x	x	x	x
Installing bearing quill with PTO stub shaft	60-17	x	x	x	x	x
PTO shift linkage (with SG2 cab), exploded view	60-18	x	x	x		x
PTO shift linkage (with MC1 cab), exploded view	60-19	x	x	x		x
PTO shift linkage (without cab), exploded view	60-20	x	x	x	x	x
PTO control valve and shift lever detent, exploded view	60-21	x	x	x	x	x

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60 – INDEPENDENT PTO SHAFTS (Contd.)						
Removing shift lever detent cover	60-22	x	x	x	x	x
Separating shift sleeve and valve spool	60-22	x	x	x	x	x
Checking control valve springs	60-22	x	x	x	x	x
Adjusting spring pretension	60-23	x	x	x	x	x
Preparing to remove PTO clutch	60-23	x	x	x	x	x
Removing PTO clutch	60-24	x	x	x	x	x
Removing oil manifold with PTO brake	60-24	x	x	x	x	x
Removing disk clutch compression spring	60-24	x	x	x	x	x
Removing PTO clutch piston	60-24	x	x	x	x	x
PTO clutch, exploded view	60-25	x	x	x	x	x
Removing PTO brake piston	60-26	x	x	x	x	x
Assembling PTO clutch	60-26	x	x	x	x	x
Installing PTO brake	60-26	x	x	x	x	x
Installing PTO clutch	60-27	x	x	x	x	x

65 – CONTINUOUS RUNNING PTO

Specifications	65-1	x	x
Torques for hardware	65-1	x	x
540 rpm continuous running PTO, sectional view	65-2	x	x
540 rpm continuous running PTO, exploded view	65-3	x	x
Removing PTO	65-4	x	x
Replacing oil seal and ball bearing	65-4	x	x
Removing PTO shift linkage	65-4	x	x
PTO shift linkage, exploded view	65-5	x	x
Installing PTO shift linkage	65-5	x	x
Adjusting taper roller bearings (heavy-duty type)	65-6	x	x
Installing PTO shaft	65-6	x	x
Removing PTO drive shaft	65-7	x	x
Installing PTO drive shaft	65-7	x	x
Final assembly	65-7	x	x

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70 – FRONT PTO						
Special tools	70-1	x	x	x		x
Specifications	70-1	x	x	x		x
Torques for hardware and adjustment data (clockwise running front PTO)	70-2	x	x	x		x
Torques for hardware and adjustment data (counterclockwise running front PTO)	70-3	x	x	x		x
Front PTO, sectional view	70-4	x	x	x		x
Removing front PTO shaft	70-5	x	x	x		x
Removing bearing quill	70-5	x	x	x		x
Removing input shaft	70-5	x	x	x		x
Removing intermediate gear shaft (counterclockwise running front PTO)	70-5	x	x	x		x
Removing PTO clutch	70-6	x	x	x		x
Removing oil manifold with PTO brake	70-6	x	x	x		x
Removing disk clutch compression spring	70-6	x	x	x		x
Removing PTO clutch piston	70-6	x	x	x		x
Removing PTO brake piston	70-7	x	x	x		x
Front PTO (clockwise), exploded view	70-7	x	x	x		x
Front PTO (counterclockwise), exploded view ..	70-8	x	x	x		x
PTO clutch and brake (clockwise), exploded view	70-9	x	x	x		x
PTO clutch and brake (counterclockwise), exploded view	70-10	x	x	x		x
Front PTO housing, exploded view	70-11	x	x	x		x
Oil lines	70-12	x	x	x		x
Installing modulation valve	70-13	x	x	x		x
Installing oil manifold with PTO brake	70-13	x	x	x		x

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70 – FRONT PTO (Contd.)

		2250	2450	2650	2650 N	2850
Assembling PTO clutch	70-13	x	x	x		x
Installing PTO clutch						
– Clockwise running PTO	70-13	x	x	x		x
– Counterclockwise running PTO	70-14	x	x	x		x
Installing intermediate gear shaft (counter-clockwise running PTO)	70-14	x	x	x		x
Assembling front PTO	70-14	x	x	x		x
Determining preload of input shaft and PTO shaft taper roller bearings	70-15	x	x	x		x
Installing bearing quill	70-15	x	x	x		x
Installing connecting pipe (counterclockwise running PTO)	70-15	x	x	x		x
Solenoid valve, exploded view	70-16	x	x	x		x
Assembling solenoid valve	70-16	x	x	x		x
Installing front PTO shaft	70-16	x	x	x		x
Adjusting hand shift lever	70-16	x	x	x		x

75 – FRONT WHEEL DRIVE U.J. DRIVE SHAFT AND DISK CLUTCH

Special tools	75-1	x	x	x	x	x
Specifications	75-1	x	x	x	x	x
Torques for hardware	75-2	x	x	x	x	x
Removing u.j. drive shaft anti-wrap guards	75-2	x	x	x	x	x
Removing universal-jointed drive shaft	75-2	x	x	x	x	x
Removing snap rings	75-3	x	x	x	x	x
Driving bearing cups out of connecting flange	75-3	x	x	x	x	x
Driving bearing cups out of drive shaft	75-3	x	x	x	x	x
Removing universal joint	75-3	x	x	x	x	x
Universal-jointed drive shaft, exploded view	75-4	x	x	x	x	x

75 – FRONT WHEEL DRIVE U.J. DRIVE SHAFT AND DISK CLUTCH (Contd.)		2250	2450	2650	2650 N	2850
Installing universal joint	75-4	x	x	x	x	x
Installing first bearing cup in u.j. drive shaft	75-5	x	x	x	x	x
Installing second bearing cup in u.j. drive shaft	75-5	x	x	x	x	x
Installing bearing cups in connecting flange	75-5	x	x	x	x	x
Installing snap rings	75-6	x	x	x	x	x
Disk clutch, sectional view	75-6	x	x	x	x	x
Removing oil pan	75-7	x	x	x	x	x
Solenoid switch and oil pan, exploded view	75-7	x	x	x	x	x
Removing plastic bushing and backup ring	75-8	x	x	x	x	x
Removing bearing quill	75-8	x	x	x	x	x
Pulling out clutch shaft	75-8	x	x	x	x	x
Removing disk clutch	75-9	x	x	x	x	x
Removing disk clutch housing	75-9	x	x	x	x	x
Lifting clutch drum out of clutch hub	75-9	x	x	x	x	x
Removing upper snap ring	75-10	x	x	x	x	x
Removing Belleville springs	75-10	x	x	x	x	x
Removing clutch disk pack	75-10	x	x	x	x	x
Removing lower snap ring	75-10	x	x	x	x	x
Removing release piston	75-11	x	x	x	x	x
Removing seal ring	75-11	x	x	x	x	x
Disk clutch assembly, exploded view	75-12	x	x	x	x	x
Installing seal ring	75-13	x	x	x	x	x
Installing release piston	75-13	x	x	x	x	x
Installing lower snap ring	75-13	x	x	x	x	x
Installing chamfered pressure ring	75-13	x	x	x	x	x
Installing clutch disks	75-14	x	x	x	x	x

**75 – FRONT WHEEL DRIVE U.J. DRIVE SHAFT
AND DISK CLUTCH (Contd.)**

		2250	2450	2650	2650 N	2850
Installing spacer ring	75-14	x	x	x	x	x
Installing upper pressure ring	75-14	x	x	x	x	x
Aligning clutch disk pack	75-15	x	x	x	x	x
Positioning Belleville springs	75-15	x	x	x	x	x
Installing upper snap ring	75-15	x	x	x	x	x
Installing friction washer	75-16	x	x	x	x	x
Installing clutch drum in clutch hub	75-16	x	x	x	x	x
Assembling clutch disk housing	75-16	x	x	x	x	x
Adjusting taper roller bearings	75-17	x	x	x	x	x
Installing taper roller bearing cone in clutch housing	75-17	x	x	x	x	x
Installing disk clutch	75-18	x	x	x	x	x
Installing bearing quill	75-18	x	x	x	x	x
Sliding backup ring and plastic bushing onto clutch shaft	75-18	x	x	x	x	x
Installing universal-jointed drive shaft	75-18	x	x	x	x	x

KRAFTUBTRG-LB35017AE-010888

SPECIFICATIONS

Dimensions of New Parts

Wear Limit

With Hydraulically Operated Clutch

Clearance between swivel point of return spring bracket and clutch pedal swivel point

- Up to Tractor Serial No. 620 387L	25 ± 1 mm (0.98 ± 0.04 in.)
- From Tractor Serial No. 620 388L	21 ± 1 mm (0.83 ± 0.04 in.)

Axial travel of master cylinder operating rod

- Up to Tractor Serial No. 620 387L	27 ± 1 mm (1.06 ± 0.04 in.)
- From Tractor Serial No. 620 388L	29 ± 1 mm (1.14 ± 0.04 in.)

With Mechanically Operated Clutch

Clutch pedal free travel	25 mm (approx. 1 in.)	13 mm (approx. 0.5 in.)
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KUPPLBET-LB35005AE-010888

TORQUES FOR HARDWARE

With Hydraulically Operated Clutch

Slave cylinder to clutch housing, hex. socket screws	25 Nm (18 ft-lb)
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With Mechanically Operated Clutch

Clutch fork to clutch shaft, cap screws	50 Nm (35 ft-lb)
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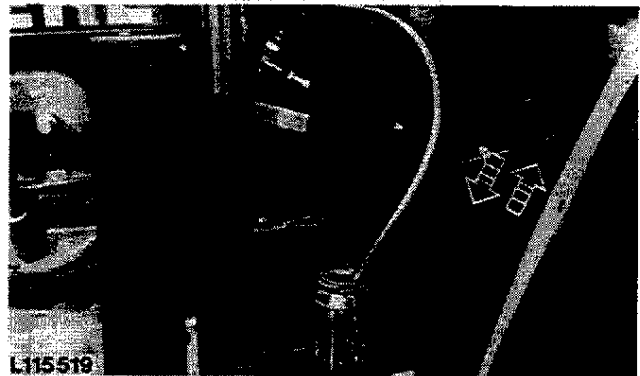
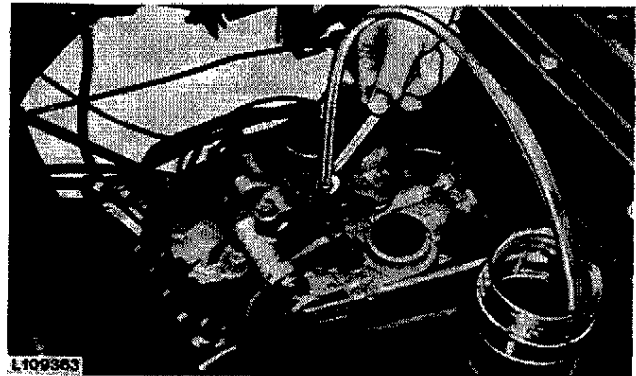
KUPPLBET-LB35005BE-000287

DRAINING CLUTCH OPERATING SYSTEM

NOTE: On tractors up to Serial No. 603 132L, drain operating system at Hi-Lo interlock. On tractors from Serial No. 603 133L, drain at bleed line.

Back off bleed screw one turn. Drain system by operating clutch pedal.

NOTE: Clutch operating lines cannot be drained completely until engine has been separated from clutch housing.



L109363, L115519-LB35005AE-010888

REMOVING DASH PANEL AT PANEL SUPPORT

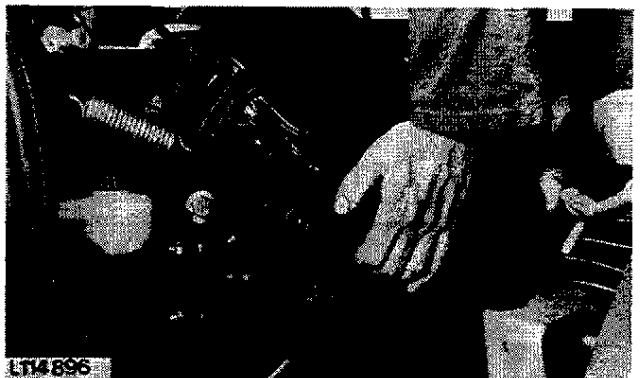


L114875-LB25005AE-010886

REMOVING CLUTCH PEDAL

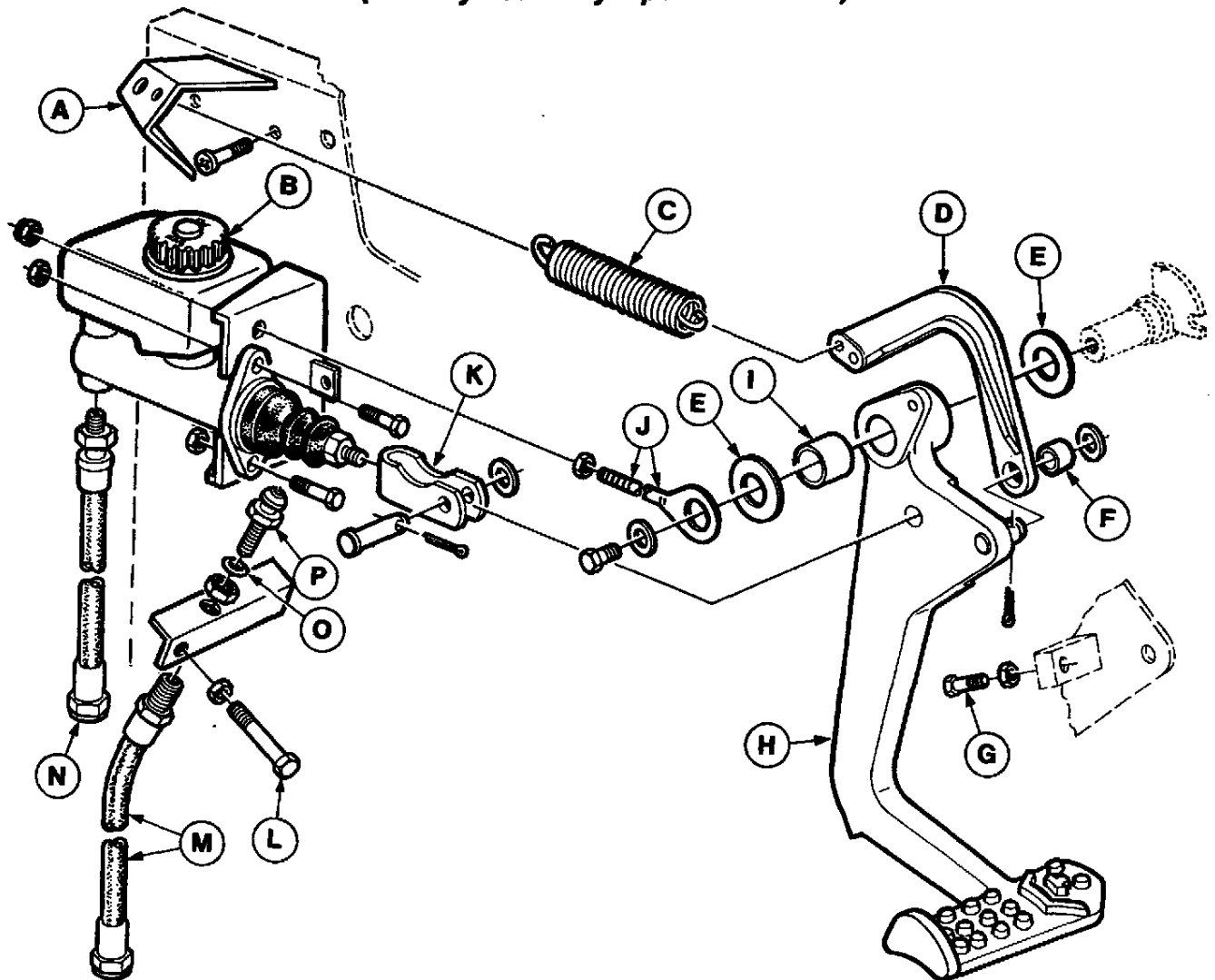


CAUTION: Relieve spring pressure by turning clutch pedal slowly.



L114896-LB25005AE-010886

**UPPER CLUTCH OPERATING SYSTEM, EXPLODED VIEW
(With Hydraulically Operated Clutch)**



L 115 493

A—Support
B—Reservoir
C—Spring
D—Bracket
E—Washers

F—Bushings*
G—Rear stop screw
H—Clutch pedal
I—Bushings (2 used)
J—Eye bolt

K—U-bracket
L—Front stop screw
M—Bleed hose
N—Pressure hose
O—O-ring
P—Bleed screw

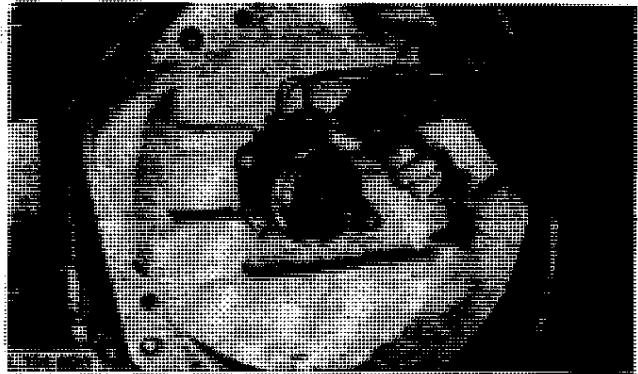
* Up to Tractor Serial No. 627 060L

L115493-LB35005AE-010888

REMOVING SLAVE CYLINDER

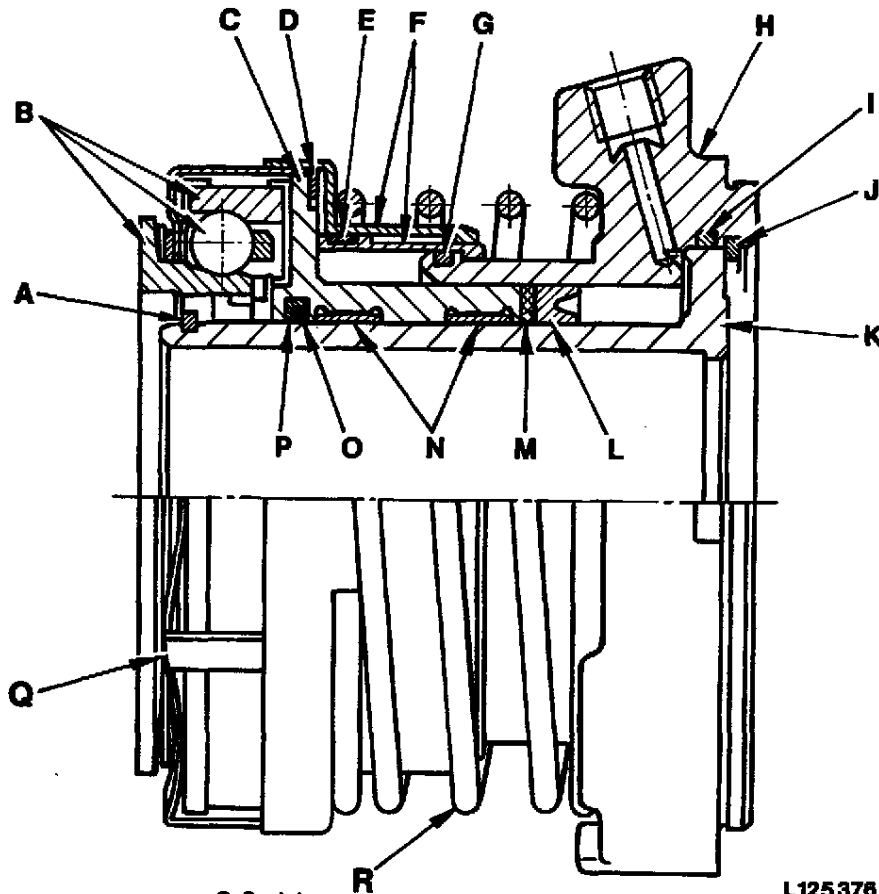
Separate tractor between engine and clutch housing (see Section 10, Group 25).

IMPORTANT: Slave cylinder must not come into contact with oil or grease.
Do not operate slave cylinder without counterpressure.



L114698-LB25005AE-010886

SLAVE CYLINDER, SECTIONAL VIEW



A-Snap ring
B-Throw-out bearing assy.
C-Ring piston
D-Seal ring
E-Seal ring
F-Protective cap

G-Seal ring
H-Housing
I-O-ring
J-Snap ring
K-Guide sleeve
L-V-packing

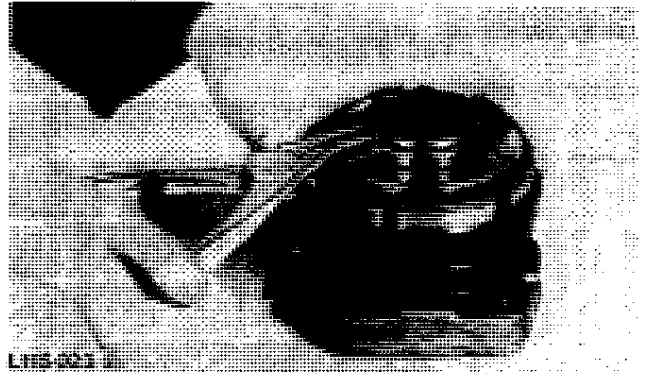
M-Back-up washer
N-Guide rings
O-O-ring
P-Wiper seal
Q-Retaining ring
R-Spring

L125376

L125376-LB35005AE-010888

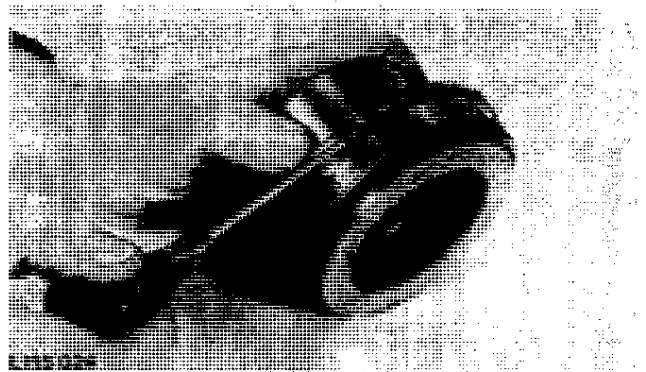
REMOVING THROW-OUT BEARING

Remove protective cap and spring.



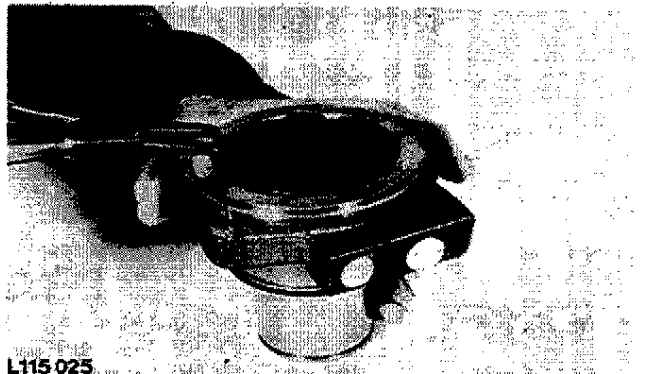
L115023-LB25005AE-010886

REMOVING RING PISTON



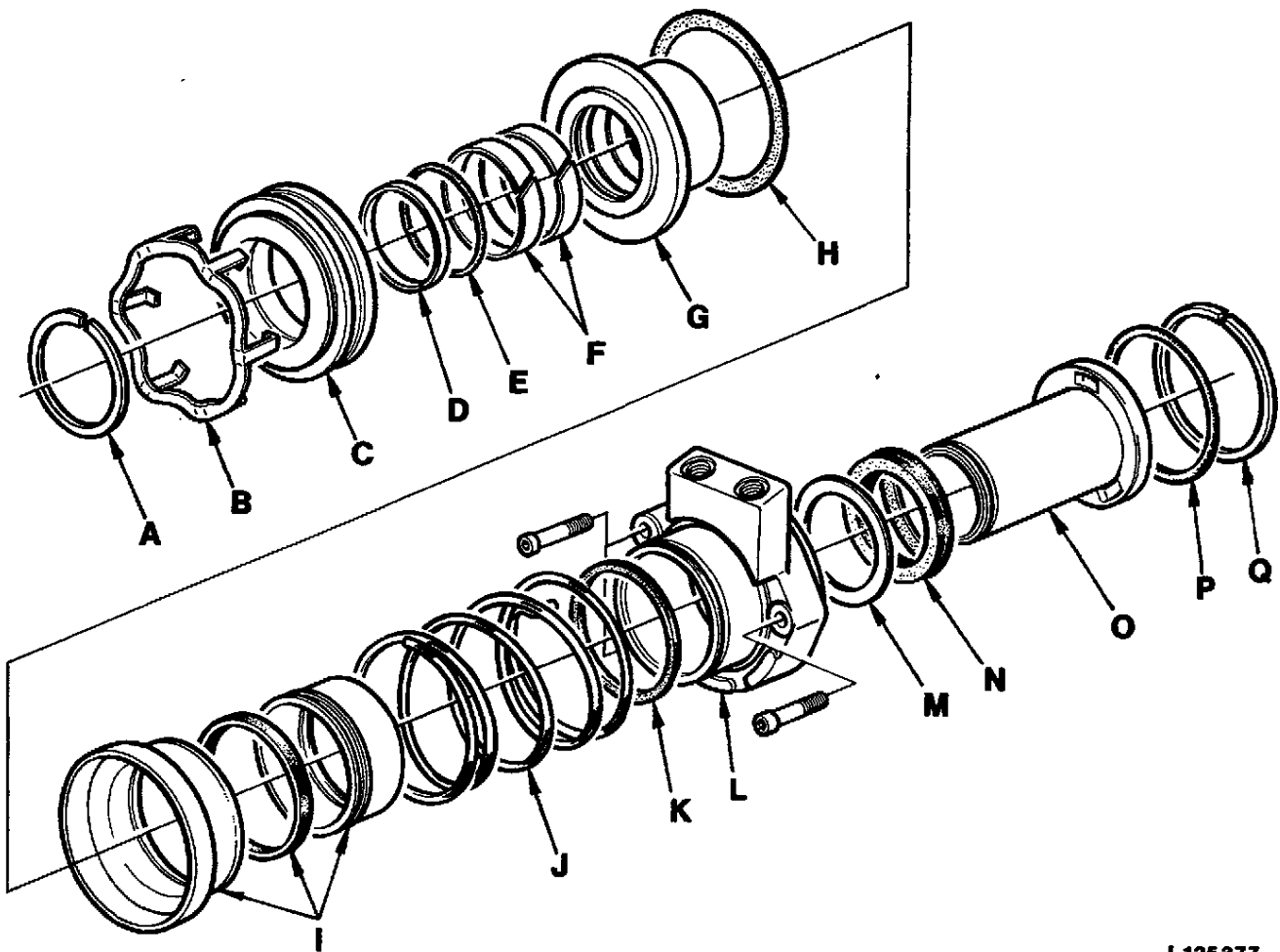
L115024-LB25005AE-010886

REMOVING GUIDE SLEEVE



L115025-LB25005AE-010886

SLAVE CYLINDER, EXPLODED VIEW



L125377

A-Snap ring*
B-Retaining ring*
C-Throw-out bearing
D-Wiper seal**
E-O-ring**
F-Guide rings**

G-Ring piston
H-Seal ring**
I-Protective cap assy.***
J-Spring
K-Seal ring**
L-Housing

M-Back-up washer**
N-V-packing**
O-Guide sleeve
P-O-ring**
Q-Snap ring*

NOTE: The individual parts marked with asterisks are part of repair kits.

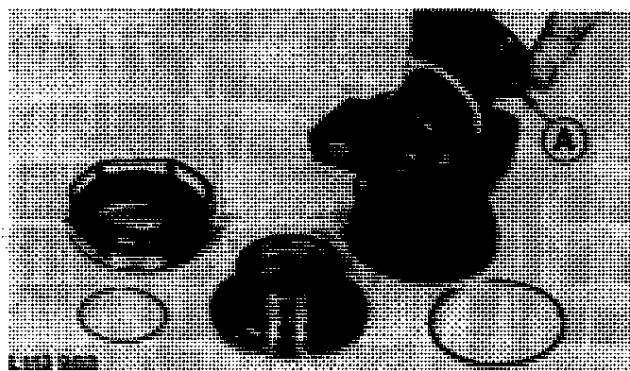
L125377-LB35005AE-010888

REPAIRING CLUTCH SLAVE CYLINDER

IMPORTANT: Clean slave cylinder and individual parts with spirit only. Should any part of the slave cylinder assembly come into contact with oil or grease, all seal rings must be replaced.

NOTE: If seal ring (see "K", exploded view) in groove of housing is replaced, also replace protective cap.

NOTE: Use only brake paste when installing V-packing (A) and other sealing elements of repair kits. Never use oil or grease.



L113968-LB35005AE-010868

INSTALLING CLUTCH SLAVE CYLINDER

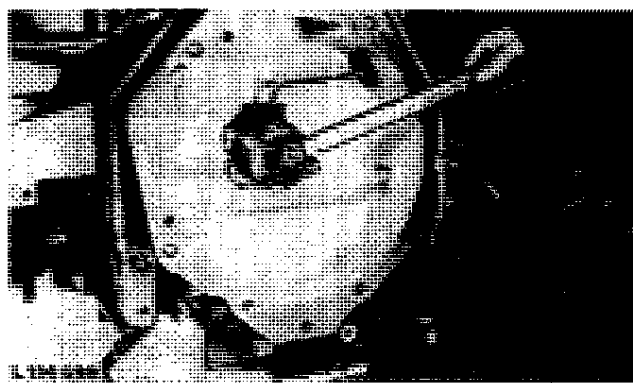
Apply LOCTITE 270 (L41476) to hex. socket screws and tighten to 25 Nm (18 ft-lb).

IMPORTANT: Keep slave cylinder free from contact with oil or grease.

Attach engine to clutch housing (see Section 10, Group 25).

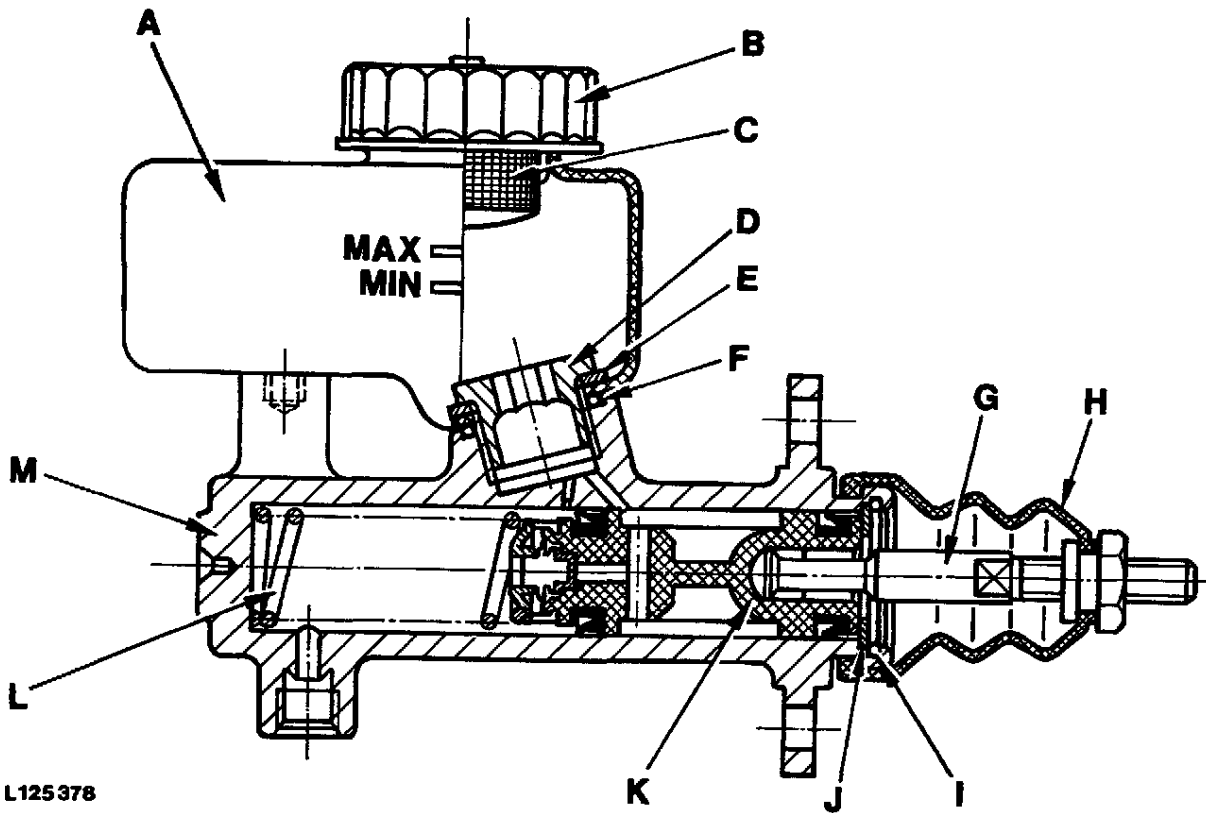
Install clutch pedal. Tension spring by slowly turning clutch pedal.

NOTE: Do not lubricate plastic coated bushing of clutch pedal with graphite grease.



L114699-LB25005AE-010488

MASTER CYLINDER, SECTIONAL VIEW



L125378

A-Reservoir
B-Cap
C-Screen filter
D-Hollow screw
E-Seal ring

F-O-ring
G-Piston rod
H-Protective cap
I-Snap ring

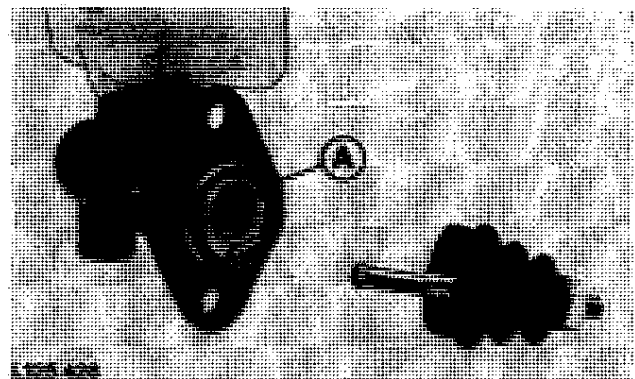
J-Washer
K-Piston
L-Pressure spring
M-Housing

L125378-LB35005AE-010888

DISASSEMBLING MASTER CYLINDER

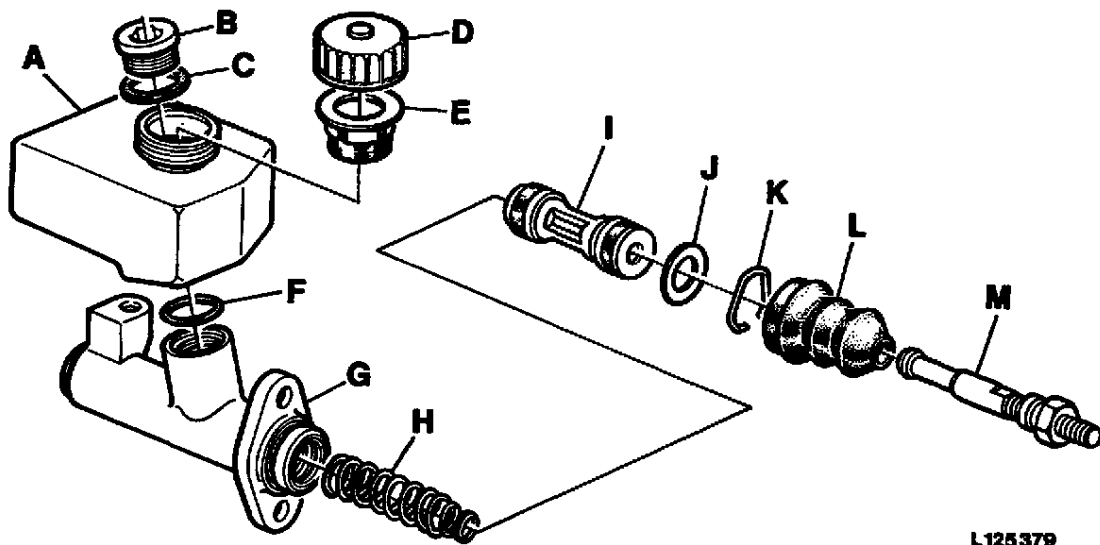
Remove piston rod with protective cap and then remove snap ring (A).

Remove individual parts.



L125428-LB35005AE-010888

MASTER CYLINDER, EXPLODED VIEW



A-Reservoir
B-Hollow screw
C-Seal ring
D-Cap
E-Screen filter

F-O-ring
G-Housing
H-Pressure spring*
I-Piston assembly*

J-Washer*
K-Snap ring*
L-Protective cap*
M-Piston rod assy.*

L125379

* Individual parts of a repair kit

NOTE: Always replace all the individual parts of a repair kit.

L125379-LB35005AE-010888

ADJUSTING REAR STOP SCREW

Measure dimension (C).

Adjust dimension (B) with rear stop screw (D) until it is less than dimension (C) by the following amount:

- Up to Tractor Serial No. 620 387L $25 \pm 1 \text{ mm}$
($0.98 \pm 0.04 \text{ in.}$)
- From Tractor Serial No. 620 388L $21 \pm 1 \text{ mm}$
($0.83 \pm 0.04 \text{ in.}$)

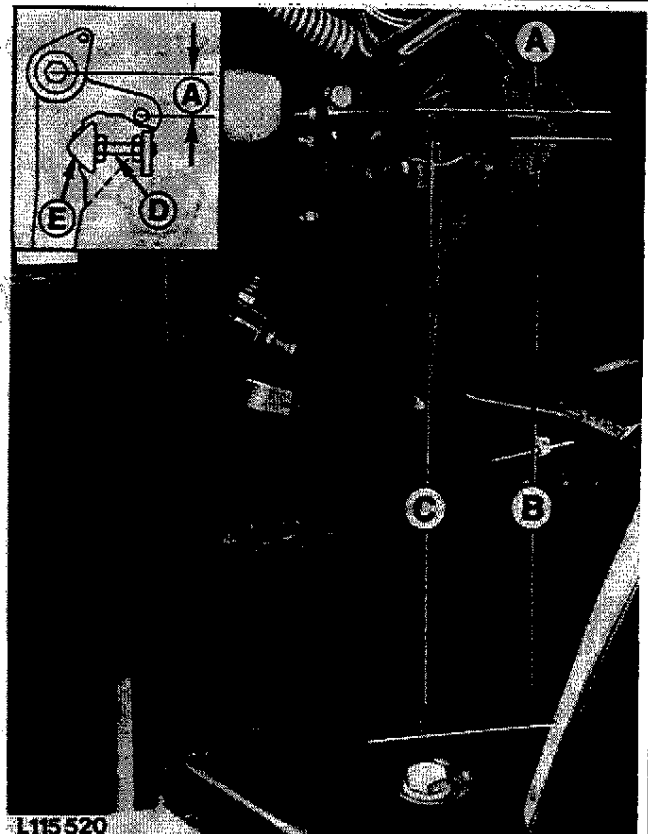
A–Difference

B–Distance from floor plate
to bracket swivel point

C–Distance from floor plate
to clutch pedal swivel point

D–Rear stop screw

E–Stop on clutch pedal



L115 520

L115520-LB35005AE-010888

PRELIMINARY ADJUSTMENT OF PISTON ROD CLEARANCE

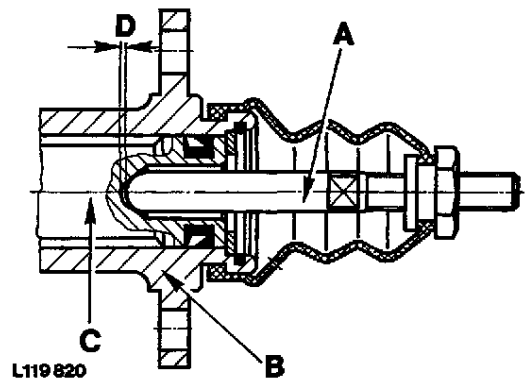
Adjust piston rod (A) to obtain a slight clearance (D) between piston (C) and piston rod.

A–Piston rod

B–Housing

C–Piston

D–Piston rod clearance



L119 820

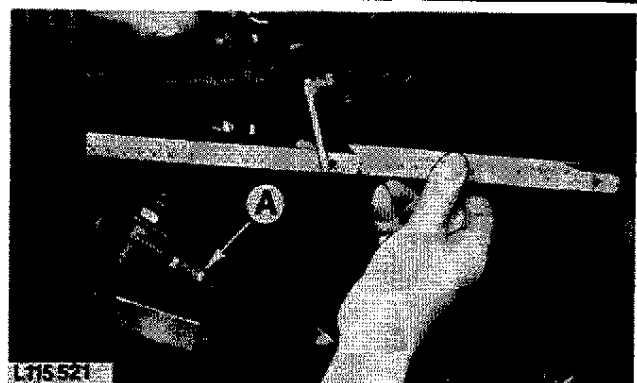
L119820-LB25005AE-000488

PRELIMINARY ADJUSTMENT OF FRONT STOP SCREW

Install tie band as illustrated.

Depress clutch pedal and measure operating rod travel.

Adjust front stop screw (A) to obtain an operating rod travel of $30 \pm 1 \text{ mm}$ ($1.18 \pm 0.04 \text{ in.}$).



L115 521

L115521-LB35005AE-010888

FILLING SYSTEM WITH BRAKE FLUID

Connect a plastic hose with funnel to bleed screw of Hi-Lo shift unit interlock (on tractors up to Serial No. 603 132L) or to bleed screw of slave cylinder (tractors from Serial No. 603 133L).

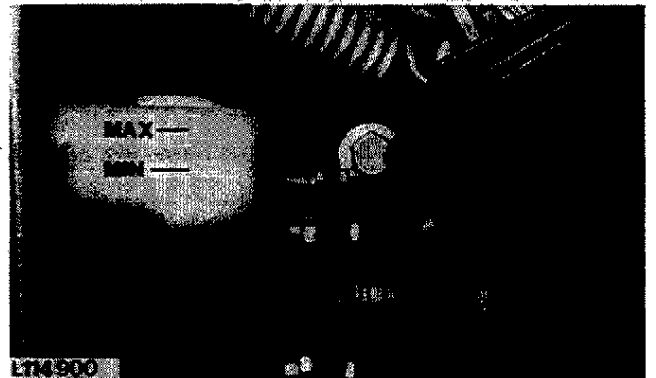
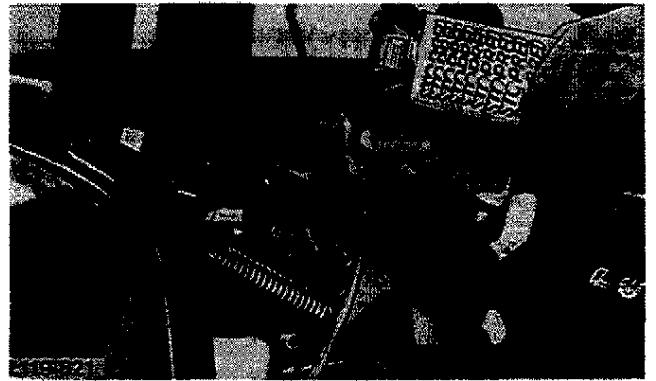
Open bleed screw. Pour brake fluid DOT 4 (FMVSS No. 116) slowly into the funnel. The funnel must be positioned above the reservoir.

Pour sufficient brake fluid into reservoir until fluid level is between the two marks on the reservoir. Close bleed screw.



CAUTION: Make sure that no brake fluid drips onto tractor parts. Brake fluid is aggressive and damages paintwork and insulating material.

NOTE: Top up level of brake fluid at reservoir.



L119821, L114900-LB35005AE-010888

BLEEDING CLUTCH OPERATING SYSTEM



CAUTION: Bleeding clutch operating system will cause tractor clutch engagement and possible personal injury if engine is running. Before bleeding, shut off engine, place transmission in neutral and apply handbrake.



CAUTION: Make sure that no fluid drips onto tractor parts because this fluid is aggressive and damages paintwork and insulating material.

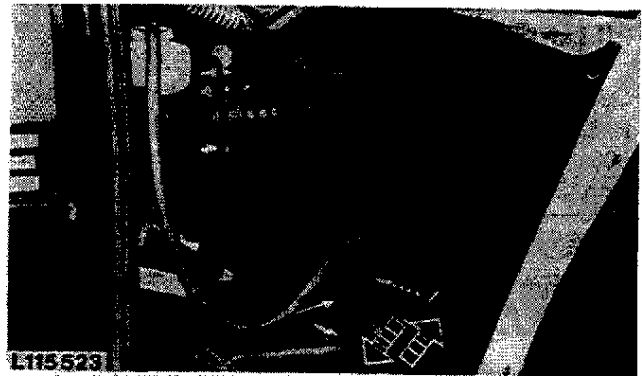
NOTE: On tractors up to Serial No. 603 132L, first bleed at Hi-Lo shift unit interlock and then at bleed line. On tractors from Serial No. 603 133L, bleed at bleed line.

Pump clutch pedal several times. Then open bleed screw and fully depress clutch pedal. Close bleed screw and slowly release clutch pedal.

Repeat this procedure until the brake fluid being discharged through the plastic hose is free of air bubbles.

NOTE: Operate clutch pedal several times after the last bleeding procedure.

NOTE: During bleeding procedure and after completion of bleeding, check level of brake fluid in reservoir and top up when necessary.



L115523, L115524-LB35005AE-010888

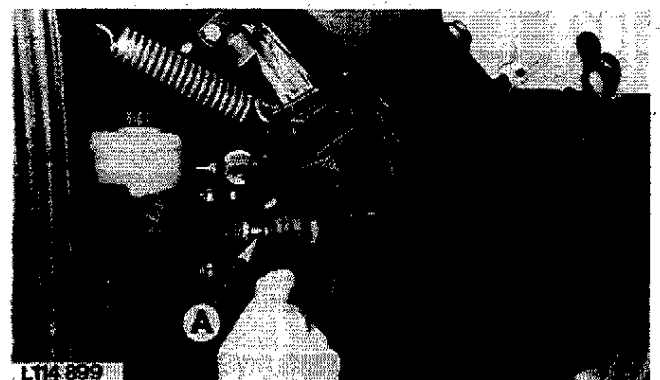
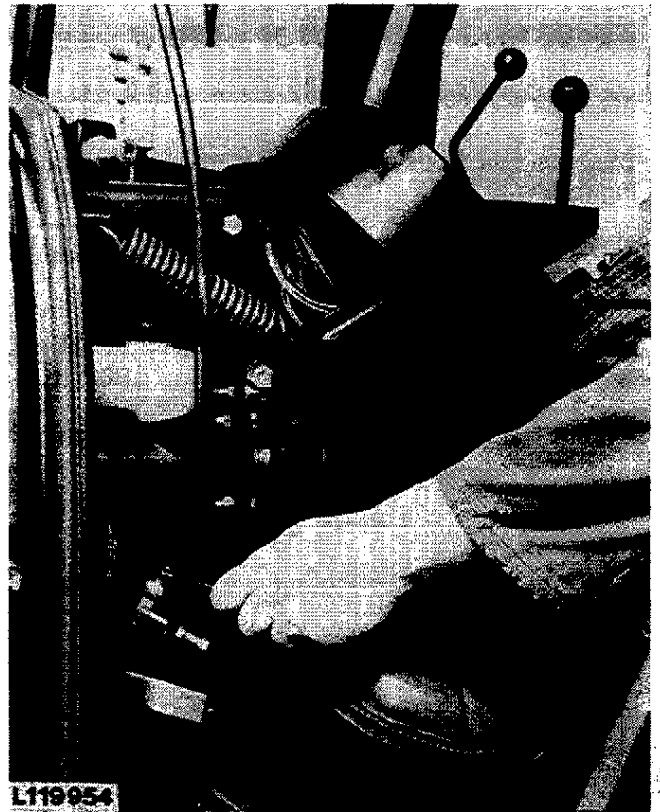
ADJUSTING MASTER CYLINDER PISTON

Connect a plastic hose to bleed screw and open bleed screw.

By means of clutch pedal, pump brake fluid to a height of approx. 1 meter (40 in.) above the reservoir. Return clutch pedal to its original position.

Turn piston rod (A) into master cylinder until brake fluid in plastic hose stops sinking. Then turn piston rod outwards until brake fluid level just starts to drop. Then turn piston outwards a further half turn.

Tighten lock nut while holding operating rod to prevent it from turning. Install protective cap.



L119954, L114899-LB35005AE-010888

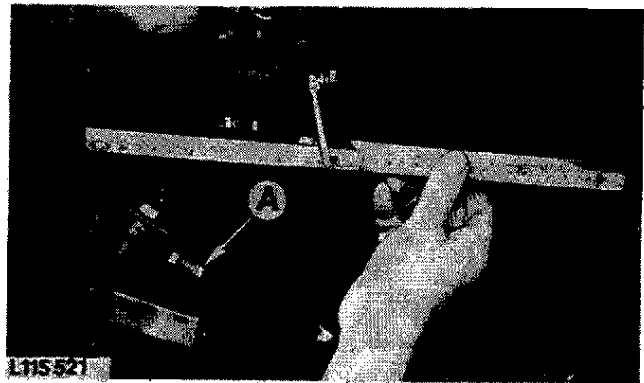
ADJUSTING FRONT STOP SCREW

Install tie band as shown.

Depress clutch pedal and measure movement of operating rod.

Adjust front stop screw (A) so the following measurement is obtained:

- Up to Tractor Serial No. 620 387L $27 \pm 1 \text{ mm}$
($1.06 \pm 0.04 \text{ in.}$)
- From Tractor Serial No. 620 388L $29 \pm 1 \text{ mm}$
($1.14 \pm 0.04 \text{ in.}$)



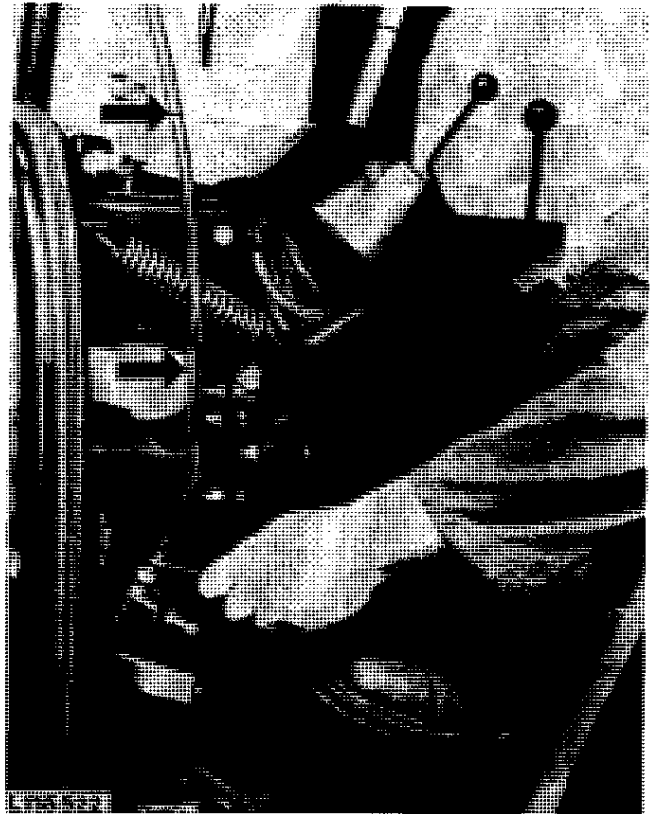
L115521-LB35005AE-010888

CHECKING CLUTCH OPERATING SYSTEM

Connect a plastic hose to the bleed screw and open bleed screw.

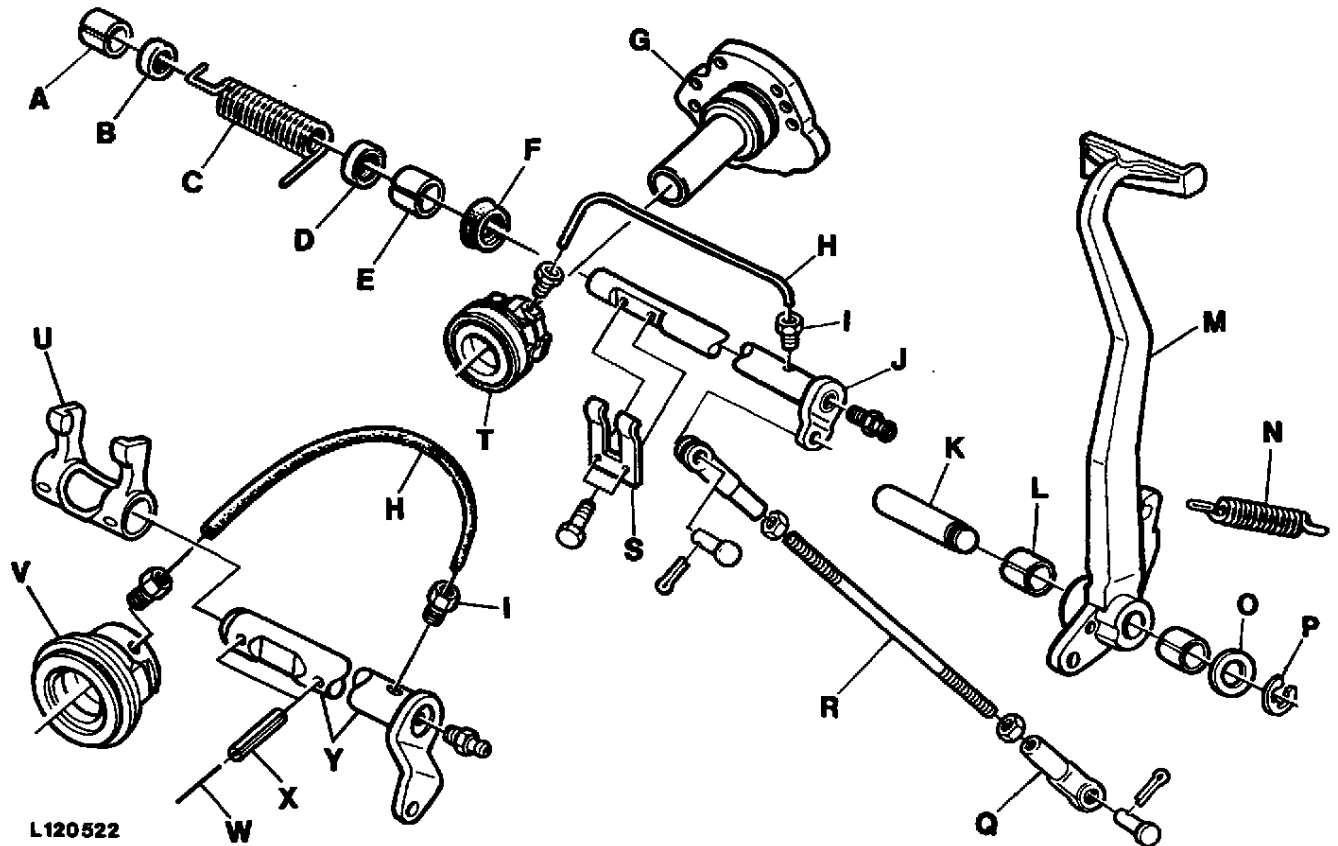
By means of clutch pedal, pump brake fluid to a height of at least 30 cm (11-3/4 in.) above reservoir. Return clutch pedal to its original position.

Fluid level should sink to same level as in reservoir.



L115522-LB35005AE-010888

CLUTCH OPERATING SYSTEM, EXPLODED VIEW (Mechanically Operated Clutch)



L120522

A-Bushing
B-Seal ring
C-Spring
D-Seal ring
E-Bushing
F-Seal ring
G-Carrier with sleeve

H-Hose
I-Connector (2 used)
J-Clutch shaft
K-Bearing pin
L-Bushing (2 used)
M-Clutch pedal

N-Spring
O-Washer
P-Snap ring
Q-Yoke (2 used)
R-Operating rod
S-Clutch fork

T-Throw-out bearing
U-Clutch fork*
V-Throw-out bearing*
W-Wire (2 used)*
X-Spring pin (2 used)*
Y-Clutch shaft*

* Tractors with dual-stage engine clutch

L120522-LB35005AE-010888

REMOVING CLUTCH OPERATING SYSTEM

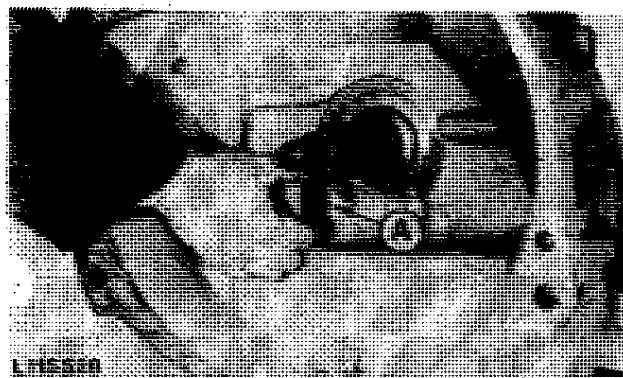
Separate tractor between engine and clutch housing
(see Section 10, Group 25).

KUPPLBET-LB25005CE-010886

INSTALLING INNER BUSHING AND OIL SEAL

Drive in bushing until flush against stop.

Install oil seal (A) with sealing lip facing bushing.



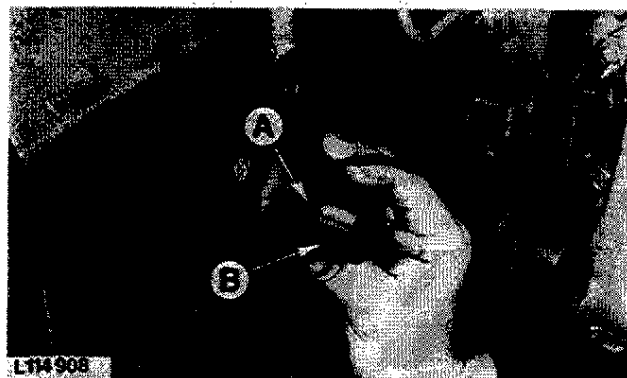
L115528-LB35005AE-010287

INSTALLING OUTER OIL SEAL AND BUSHING

NOTE: The outer oil seal and outer bushing have a larger outer diameter than the inner seal and bushing.

Install oil seal (A) with sealing lip facing away from bushing (B).

Drive in new bushing (B) until flush with outer face of clutch housing.



L114908-LB25005AE-010886

INSTALLING CLUTCH FORK AND THROW-OUT BEARING

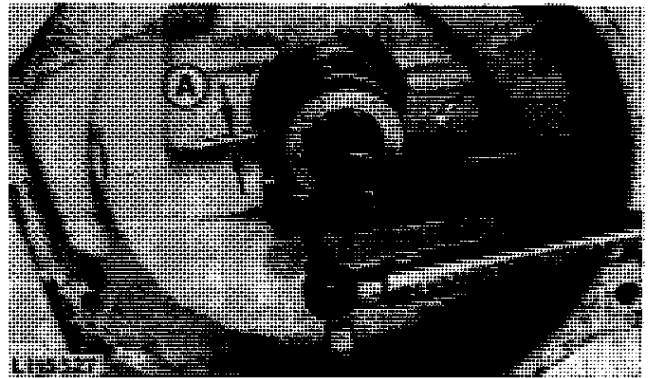
IMPORTANT: Before installing the clutch shaft, coat bushings and oil seals with high-temperature JOHN DEERE EP multipurpose grease.

Coat sleeve sliding surface of throw-out bearing carrier and both surfaces of throw-out bearing which contact clutch fork with John Deere High Temperature EP Multipurpose Grease (TY6333).

Coat clutch fork attaching screws with LOCTITE 270 (L41476) and tighten to 50 Nm (35 ft-lb).

Before connecting lube hose to clutch throw-out bearing, lubricate clutch shaft with high-temperature JOHN DEERE EP multipurpose grease until grease is forced out of end of lube hose. Then connect lube hose to clutch throw-out bearing.

Centering movement (A) of the clutch throw-out bearing from stop to stop on carrier must be at least 1.6 mm (0.063 in.).



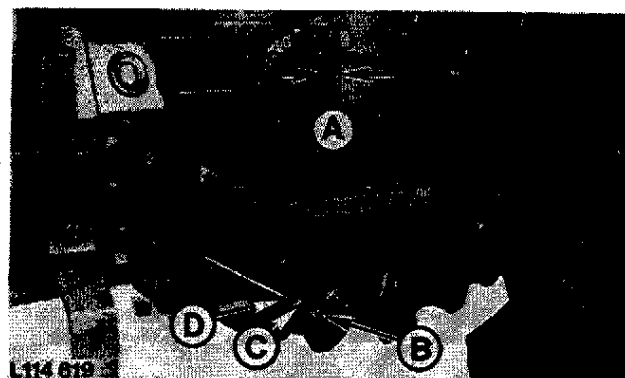
L115527-LB35005AE-010888

ADJUSTING CLUTCH PEDAL FREE TRAVEL

Join tractor between engine and clutch housing (see Section 10, Group 25).

Turn yoke (C) until a clutch pedal free travel (A) of 25 mm (approx. 1 in.) has been obtained.

IMPORTANT: If clutch pedal free travel is less than specified minimum of 13 mm (1/2 in.), do not use tractor again until clutch pedal free travel has been adjusted.



A—Free travel
B—Pin

C—Yoke
D—Lock nut

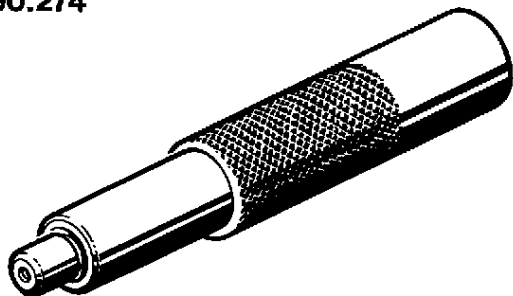
L114619-LB35005AE-010287

Group 10 **SINGLE-STAGE ENGINE CLUTCH**

SPECIAL TOOLS

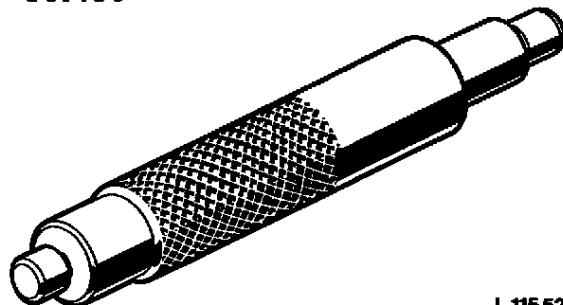
19.58 - 90.274

(A)



19.58 - 90.486

(B)



L 115 526

A—Installing LUK engine clutch

B—Installing F & S engine clutch

L115526-LB35010AE-010287

SPECIFICATIONS

	Dimensions of New Parts	Wear Limit
Thickness of a new clutch disk	10 mm (0.39 in.)	7 mm (0.26 in.)
Max. permissible warpage of clutch disk	0.5 mm (0.02 in.)	
Thickness of a new pressure plate:		
– F & S clutch	62.70 mm (2.468 in.)	
– LUK clutch	63.85 mm (2.514 in.)	
Max. permissible wear of pressure plate		0.5 mm (0.02 in.)
Max. permissible machining of pressure plate	1 mm (0.04 in.)	

MOTORKUPPL-LB35010AE-010888

SPECIFICATIONS (Contd.)

	Dimensions of New Parts	Wear Limit
Distance from friction face to mounting face (crankshaft) of flywheel (new flywheel)	39.78 to 39.98 mm (1.566 to 1.574 in.)	
Distance from mounting face for base plate and friction face of flywheel (new flywheel)	21.47 to 21.73 mm (0.845 to 0.855 in.)	
Maximum permissible wear of flywheel	.	0.5 mm (0.02 in.)
Max. permissible machining of friction face and clutch mounting face of flywheel	1 mm (0.04 in.)	
Max. permissible machining of friction face and clutch mounting face of flywheel using a new clutch	2 mm (0.08 in.)	
Max. permissible warpage of flywheel friction face measured 6.4 mm (0.252 in.) from outer edge of friction face	.	0.15 mm (0.006 in.)
Max. surface roughness of flywheel friction face	.	3.2 μ m (126 micro-inch)

MOTOR KUPPL-LB35010BE-010888

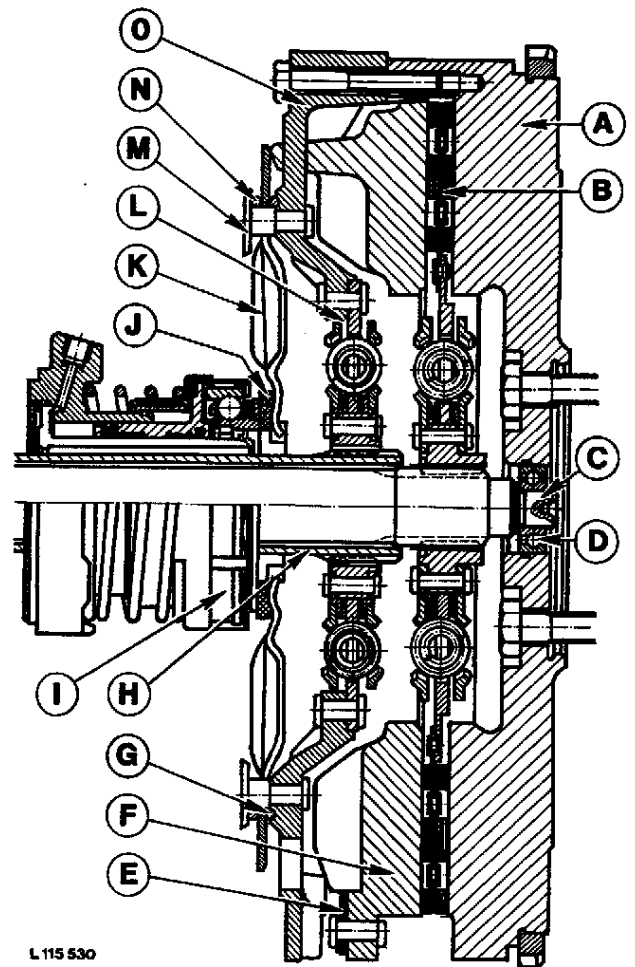
TORQUES FOR HARDWARE

Clutch assembly to flywheel, cap screws and hex. nuts	50 Nm (35 ft-lb)
Flywheel to crankshaft, cap screws	160 Nm (120 ft-lb)

MOTOR KUPPL-LA75010BE-200385

ENGINE CLUTCH (F & S), SECTIONAL VIEW

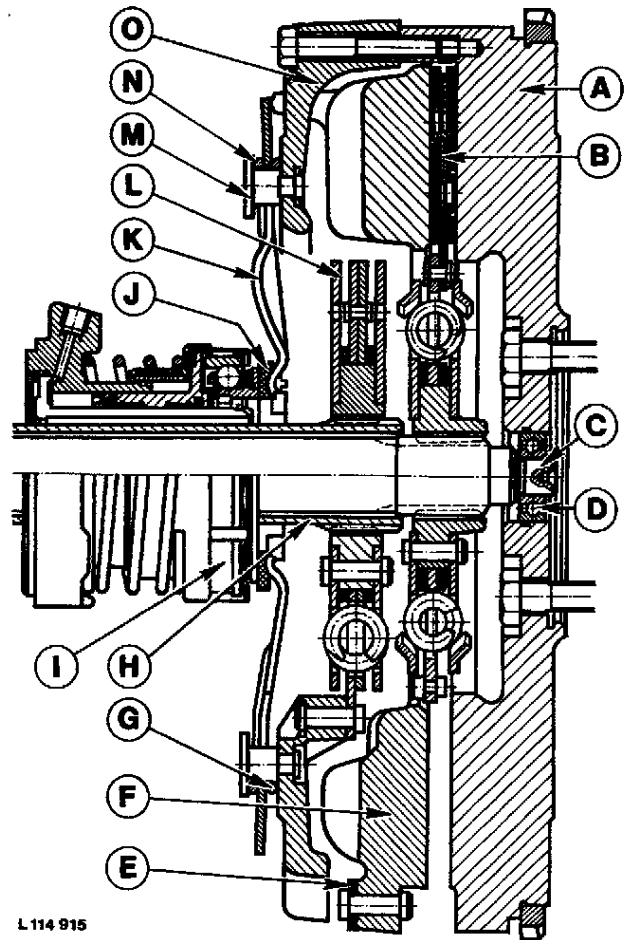
- A—Flywheel
- B—Clutch disk
- C—Drive shaft
- D—Pilot bearing
- E—Leaf spring (3 used)
- F—Pressure plate
- G—Wire ring
- H—Hollow drive shaft
- I—Pressure bearing
- J—Throw-out ring
- K—Diaphragm spring
- L—Torsion damper
- M—Spacer rivet (12 used)
- N—Waved wire ring
- O—Housing



L115530-LB35010AE-000287

ENGINE CLUTCH (LUK), SECTIONAL VIEW

- A—Flywheel
- B—Clutch disk
- C—Drive shaft
- D—Pilot bearing
- E—Leaf spring (3 used)
- F—Pressure plate
- G—Wire ring
- H—Hollow drive shaft
- I—Pressure bearing
- J—Throw-out ring
- K—Diaphragm spring
- L—Torsion damper
- M—Spacer rivet (16 used)
- N—Waved wire ring
- O—Housing



L 114 915

L114915-LB35010AE-000287

FUNCTIONAL TEST OF ENGINE CLUTCH

Drive tractor and shift transmission through all gears.

Should it be determined that the clutch is slipping or does not disengage correctly, the cause may be in the clutch operating system or the clutch assembly.

Before removing engine clutch:

- Check position of piston in master cylinder (see Group 05 of this section).
- Check adjustment of front and rear clutch pedal stop screws (see Group 05 of this section).
- Bleed clutch operating system (see Group 05 of this section).

Again drive tractor and shift transmission through all gears.

Should clutch trouble still exist, then separate tractor between engine and clutch housing (see Section 10, Group 25).



L113312-LA75010AE-100486

MEASURING CLEARANCE BETWEEN PRESSURE PLATE AND FLYWHEEL FRICTION FACE

The clearance (A) is approx. 10 mm (0.39 in.) with new parts on both F & S and LUK clutches.

The wear limit is reached when clearance (A) is approx. 6 mm (0.24 in.).

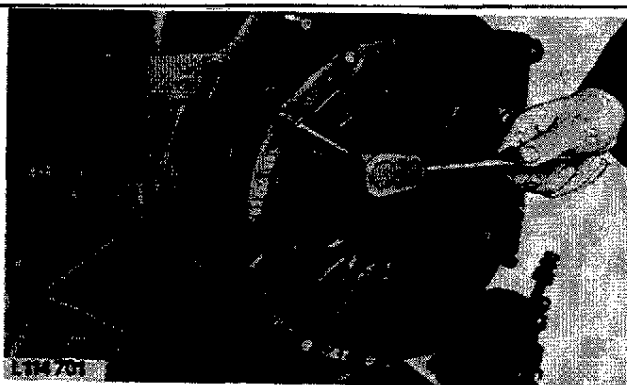


L114700-LB35010AE-010287

REMOVING ENGINE CLUTCH

Remove cap screws and hex. nuts.

NOTE: Keep the clutch disk linings free from oil and grease.



L114701-LB25010AE-010886

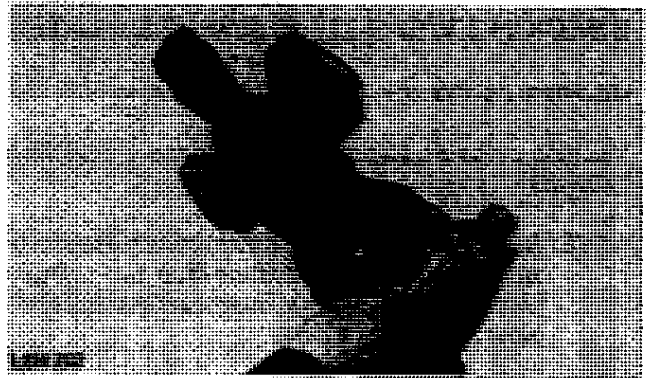
CHECKING THICKNESS OF CLUTCH DISK

Thickness of a new clutch disk: 10 mm (0.39 in.).

Minimum thickness: 7 mm (0.26 in.).

Max. permissible warpage: 0.5 mm (0.02 in.).

NOTE: *To check thickness of clutch pads, secure clutch disk in a vice as shown. This applies to clutch disks with either organic or ceramic pads.*



L114702-LB35010AE-010287

CHECKING WEAR OF PRESSURE PLATE

Maximum permissible wear: 0.5 mm (0.02 in.).

Machine pressure plate when wear is more than 0.5 mm (0.02 in.).

NOTE: Remove pressure plate from clutch assembly for machining. Machine friction face just sufficient until free from scores, overheated areas and heat cracks.

Check minimum measurement "a" before machining pressure plate. Replace pressure plate when minimum measurement "a" is reached.

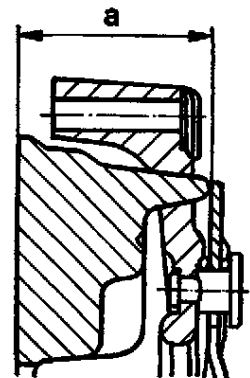
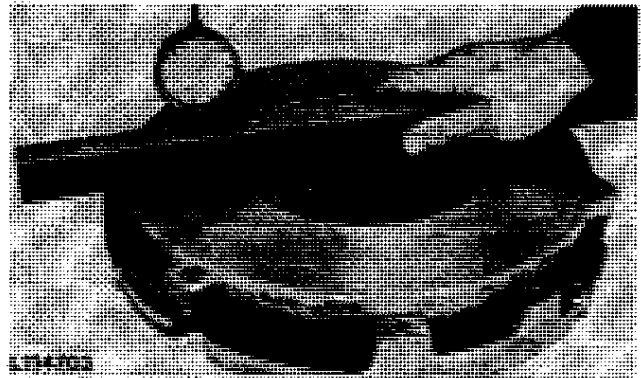
Maximum permissible amount of wear and machining must not exceed 1 mm (0.04 in.).

Minimum measurement "a":

F & S clutch	61.70 mm (2.429 in.)
LUK clutch	62.85 mm (2.474 in.)

NOTE: Machine flywheel on mounting face of clutch by same amount as pressure plate.

Use relevant repair kit when installing a new pressure plate.



L114703, L115355-LB35010AE-010898

CHECKING FLYWHEEL

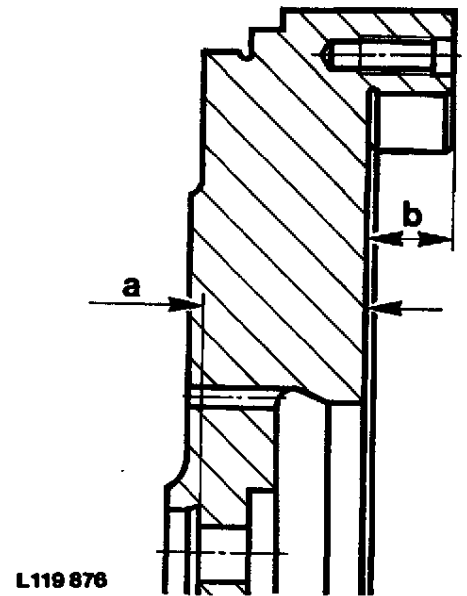
Distance between friction face and mounting face (see measurement "a"):
39.78 to 39.98 mm (1.566 to 1.574 in.)

Distance between mounting face for base plate and friction face of flywheel (see measurement "b"):
21.47 to 21.73 mm (0.845 to 0.855 in.)

NOTE: Dimensions ("a" and "b") refer to a new flywheel.

Maximum permissible warpage of flywheel measured 6.4 mm (0.252 in.) from outer edge of friction face:
0.15 mm (0.006 in.)

Maximum permissible roughness of friction face:
3.2 μm (126 micro-in.)



L119876-LB35010AE-010888

CHECKING WEAR OF FLYWHEEL FRICTION FACE

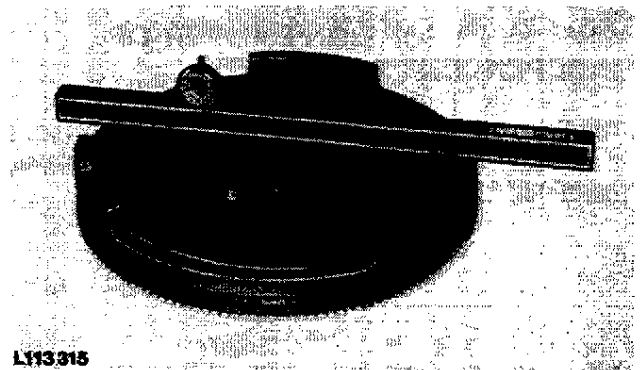
Maximum permissible wear: 0.5 mm (0.02 in.).

Machine flywheel when wear is more than 0.5 mm (0.02 in.).

NOTE: Machine front surface of flywheel the same amount as friction face. Machine friction face just sufficient until free from scores, overheated areas and heat cracks.

Maximum permissible amount of wear and machining must not exceed 1 mm (0.04 in.).

NOTE: When required, front friction surface and mounting face of flywheel can be machined up to a maximum of 2 mm (0.08 in.) when using a new clutch disk and a new clutch assembly.



L113315-LB25010AE-010488

CHECKING DISENGAGEMENT MOVEMENT OF PRESSURE PLATE

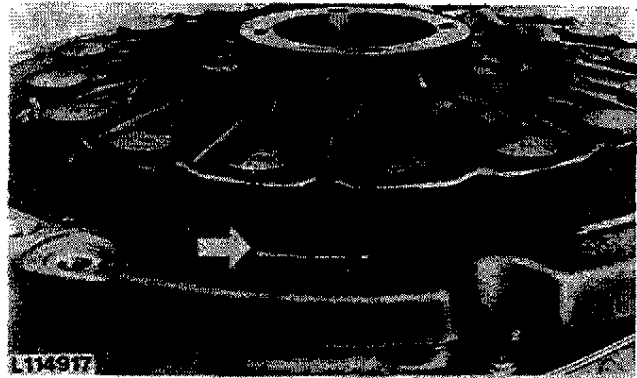
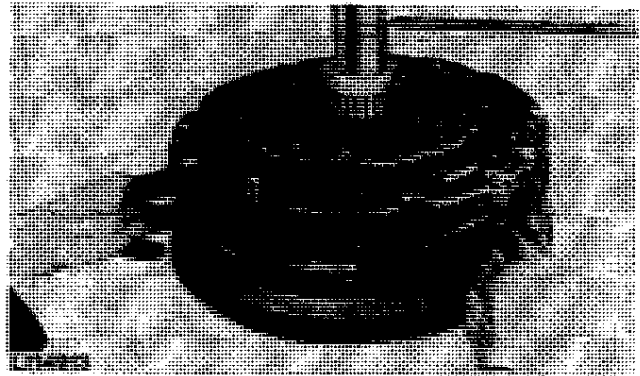
Assemble clutch assembly, clutch disk and flywheel.

Press diaphragm spring 8.5 mm (0.32 in.) downwards.

Check pressure plate at several points of circumference as to whether pressure plate has risen sufficiently from the clutch disk.

The clutch disk should turn easily. If this is not the case, check leaf springs and replace, if necessary. When replacing springs, use the relevant repair kit.

Check bearing surface of diaphragm spring. There should be no clearance between pressure plate cams and diaphragm spring.



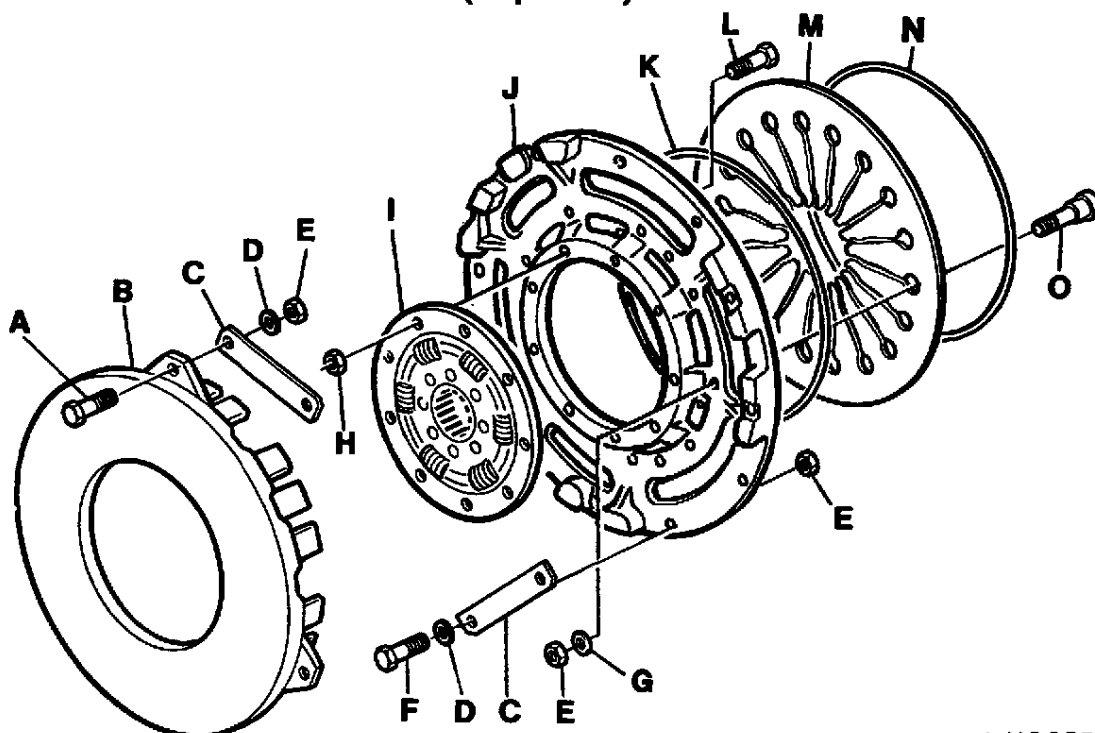
L114913, L114917-LB25010AE-010886

CHECKING TORSION DAMPER OF INDEPENDENT PTO

Check torsion damper for damage and attachment. When necessary, replace torsion damper using the relevant repair kit.

MOTORKUPPL-LA75010CE-100486

F & S CLUTCH ASSEMBLY, EXPLODED VIEW (Repair Kit)



L119955

A-Special cap screw (4 used)
B-Pressure plate*
C-Leaf springs (6 used)
D-Washer (8 used)

E-Self-locking nut (20 used)
F-Cap screw (4 used)
G-Washer (12 used)
H-Hex. nut (10 used)

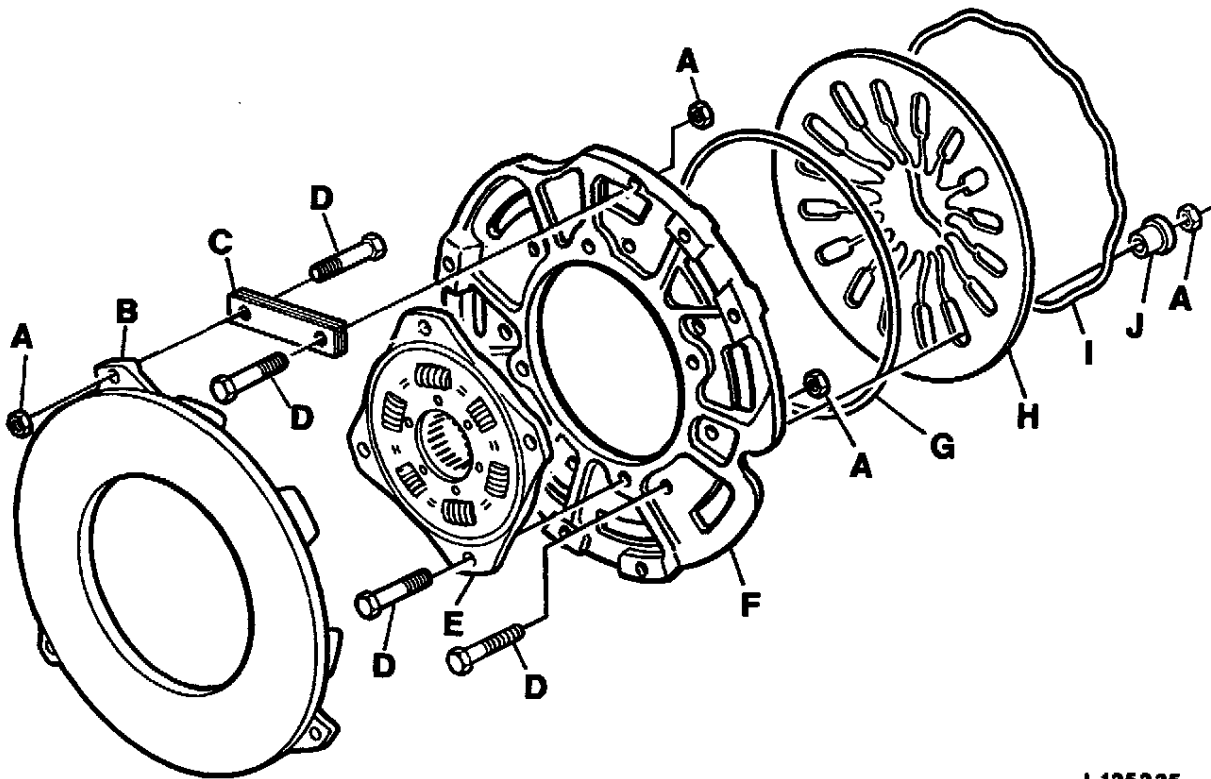
I-Torsion damper
J-Base plate*
K-Wire ring

L-Cap screw (10 used)
M-Diaphragm spring
N-Wire ring
O-Special screw (12 used)

* Not part of repair kit

L119955-LB35010AE-010888

**LUK CLUTCH ASSEMBLY, EXPLODED VIEW
(Repair Kit)**



L 125235

A-Hex. nut (34 used)
B-Pressure plate*
C-Leaf spring (9 used)

D-Cap screw (34 used)
E-Torsion damper
F-Base plate*

G-Wire ring
H-Diaphragm spring

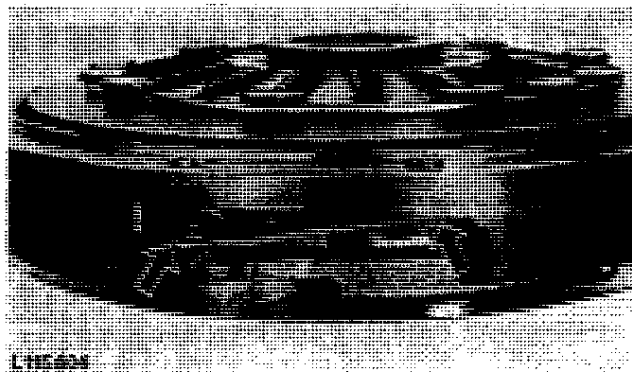
I-Wire ring
J-Bushing (34 used)

* Not part of repair kit

L125235-LB35010AE-010688

ASSEMBLING PRESSURE PLATE AND HOUSING (F & S)

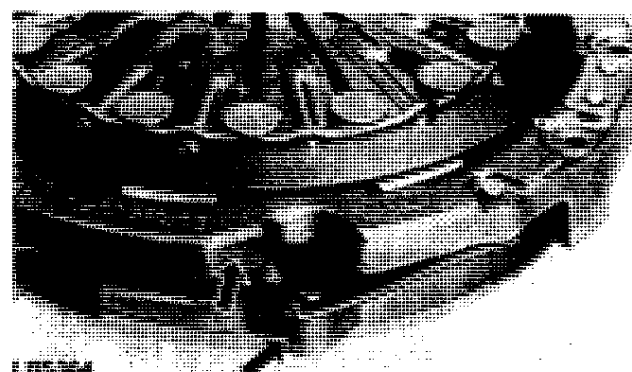
IMPORTANT: Leaf springs must be installed with the chamfered edge to the outside.



L115604-LB35010AE-010287

ASSEMBLING PRESSURE PLATE AND HOUSING (LUK)

IMPORTANT: When assembling pressure plate and housing, make sure that beveled face of pressure plate cam is aligned as shown with beveled face of housing.

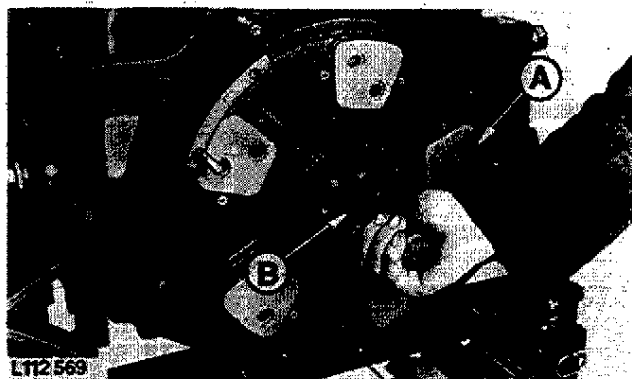


L115364-LB35010AE-010287

INSTALLING CLUTCH DISK

Tighten flywheel cap screws crosswise to 160 Nm (120 ft-lb).

With relevant clutch disk (A), insert special tool (B), 19.58-90.274 with LUK clutch or 19.58-90.486 with F & S clutch into pilot bearing of flywheel with side marked "Schwungrad" (flywheel) of clutch disk facing towards flywheel.



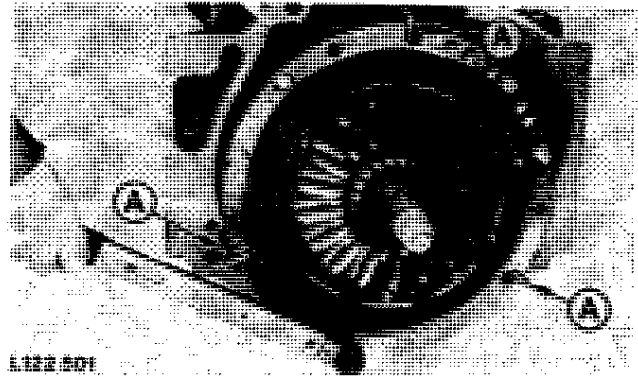
L112569-LB35010AE-010287

INSTALLING CLUTCH ASSEMBLY

F & S Clutch

NOTE: The two flywheel studs must be guided into the two bores marked with a groove (see arrows).

NOTE: If equipped, remove the three safety brackets (A) only after installing the clutch. The brackets are released after tightening cap screws and nuts.



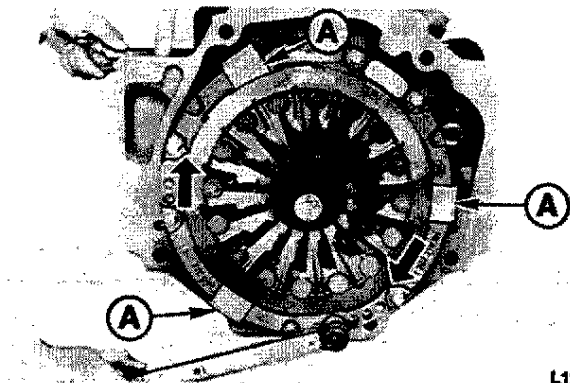
L122 501

L122501-LB35010AE-010490

LUK Clutch

NOTE: The two flywheel studs must be guided into the two clutch assembly bores marked with a recess (see arrows).

NOTE: If equipped, remove the three safety brackets (A) only after installing the clutch. The brackets are released after tightening cap screws and nuts.



L122 957

L122957-LB35010AE-010490

Single-Stage Engine Clutch

F & S and LUK Clutches

Tighten cap screws and hex. nuts equally and cross-wise to 50 Nm (35 ft-lb).

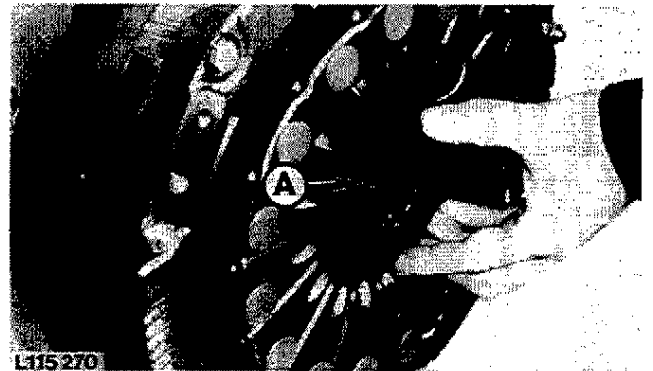
NOTE: To prevent damage to throw-out ring, install throw-out ring after clutch assembly has been installed.

NOTE: Coat splines of clutch disk and torsion damper thinly and uniformly with RENOPLEX GLP2 (L63503) grease.

MOTORKUPPL-LB35010CE-010888

INSTALLING CLUTCH THROW-OUT RING

NOTE: Make sure that springs (A) of clutch throw-out ring rest correctly in tongues of diaphragm spring.



L115 270

L115270-LB35010AE-010287

FINAL ASSEMBLY

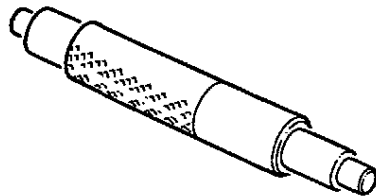
Join tractor between clutch housing and engine (see Section 10, Group 25).

MOTORKUPPL-LB35010DE-010287

Group 15 **DUAL-STAGE ENGINE CLUTCH**

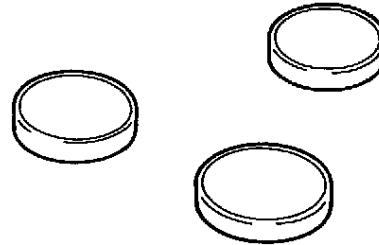
SPECIAL TOOLS

19.58-90.486



A

JDE-143



B

L111330

A—Installing engine clutch

B—Adjusting clutch release lever

L111330-LB35015AE-010287

SPECIFICATIONS

	Dimensions of New Parts	Wear Limit
Thickness of a new engine clutch disk	9 to 9.6 mm (0.35 to 0.38 in.)	6 mm (0.24 in.)
Thickness of a new PTO clutch disk	7.7 to 8.3 mm (0.30 to 0.33 in.)	4.7 mm (0.18 in.)
Maximum permissible warpage of clutch disk	0.5 mm (0.02 in.)	
Distance from mounting face to friction face of base plate	1.45 to 1.55 mm (0.057 to 0.061 in.)	
Maximum permissible wear of friction face of base plate	.	0.15 mm (0.006 in.)
Max. permissible machining of base plate	0.5 mm (0.02 in.)	

MOTORZWKUPPL-LB35015AE-010888

SPECIFICATIONS (Contd.)

	Dimensions of New Parts	Wear Limit
Thickness of a new pressure plate:		
– Engine clutch	15.0 mm (0.59 in.)	
– PTO clutch	18.2 to 18.5 mm (0.72 to 0.73 in.)	
Maximum permissible wear of friction face of pressure plate	.	0.15 mm (0.006 in.)
Maximum permissible machining of pressure plate	0.5 mm (0.02 in.)	
Distance between friction face and mounting face (crankshaft) of flywheel (new flywheel)	23.9 to 24.1 mm (0.94 to 0.95 in.)	
Distance from face to friction surface of flywheel (new flywheel)	55.87 to 56.13 mm (2.200 to 2.210 in.)	
Maximum permissible wear of flywheel	.	0.5 mm (0.02 in.)
Maximum permissible machining of friction face and clutch mounting face of flywheel	0.5 mm (0.02 in.)	
Max. total measurement of wear and machining of flywheel	1 mm (0.04 in.)	
Maximum permissible roughness of flywheel machined surface	.	3.2 μ m (126 micro-inch)
Clearance of clutch levers from hub face of rear clutch disk	37 to 37.6 mm (1.46 to 1.48 in.)	
Maximum permissible difference in height of release levers	0.4 mm (0.016 in.)	

MOTORZWKUPPL-LB35015BE-010888

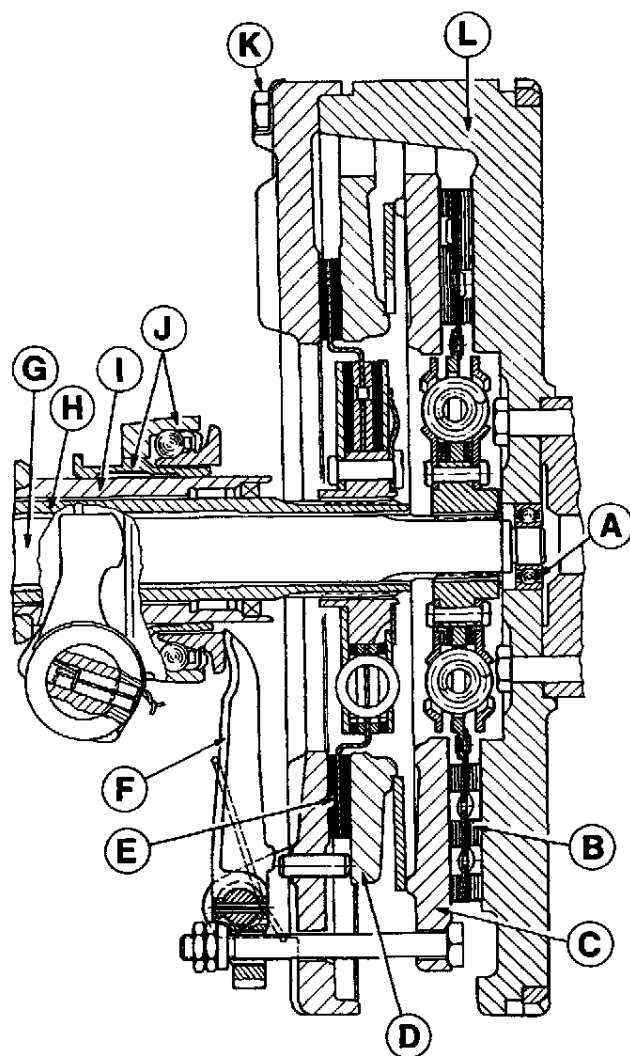
TORQUES FOR HARDWARE

Clutch assembly to flywheel, cap screws and hex. nuts	50 Nm (35 ft-lb)
Flywheel to crankshaft, cap screws	160 Nm (120 ft-lb)
Operating bolt lock nuts	30 Nm (23 ft-lb)

MOTORZWKUPPL-LB35015CE-010287

DUAL-STAGE ENGINE CLUTCH, SECTIONAL VIEW

- A—Pilot bearing
- B—Front clutch disk
- C—Front pressure plate
- D—Rear pressure plate (PTO)
- E—Rear clutch disk (PTO)
- F—Release lever (3 used)
- G—Drive shaft
- H—Hollow drive shaft
- I—Carrier sleeve
- J—Throw-out bearing
- K—Cap screw (3 used)
- L—Flywheel



L111331

L111331-LB35015AE-000287

REMOVING DUAL-STAGE ENGINE CLUTCH

Separate tractor between engine and clutch housing, see Section 10, Group 25.

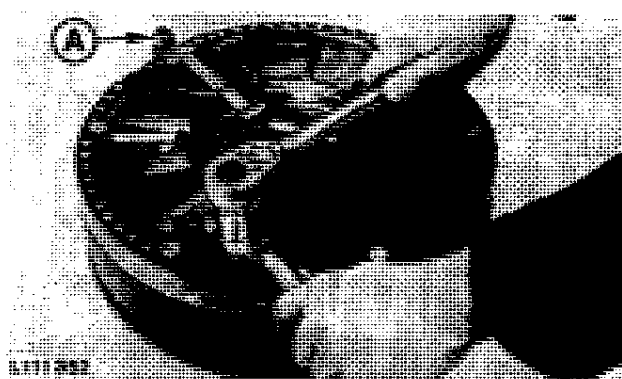
NOTE: Keep the clutch disk linings free from oil and grease.

MOTORZWKUPPL-LB35015DE-010287

DISASSEMBLING CLUTCH ASSEMBLY

To remove hex. nuts (A), install clutch assembly with special tool JDE-143 or clutch disk in flywheel.

NOTE: Mark parts before disassembling for correct assembly.



L111352-LB35015AE-010287

CHECKING THICKNESS OF CLUTCH DISKS

NOTE: To check thickness of clutch pads, secure pad with disk in a vice. This is not necessary with a PTO clutch disk.

Engine Clutch

Thickness of a new clutch disk 9 to 9.6 mm
(0.35 to 0.39 in.)

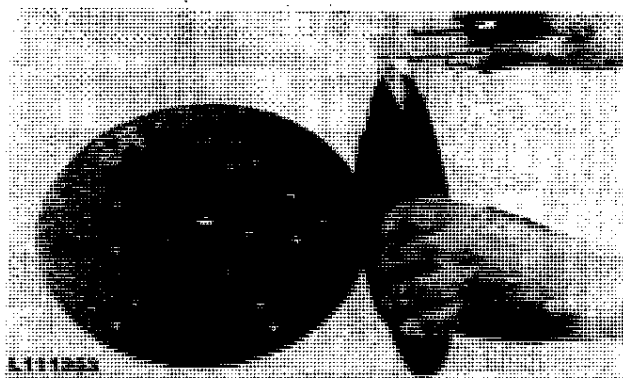
Minimum thickness 6 mm (0.24 in.)

Max. permissible warpage 0.5 mm (0.02 in.)

PTO Clutch

Thickness of a new clutch disk 7.7 to 8.3 mm
(0.30 to 0.33 in.)

Minimum thickness 4.7 mm (0.18 in.)



L111353-LB35015AE-010888

CHECKING BASE PLATE AND PRESSURE PLATES

Distance from mounting surface to friction face of base plate (see measurement "a") 1.45 to 1.55 mm
(0.057 to 0.061 in.)

Thickness of a pressure plate:

– Engine clutch (see measurement "c") 15.0 mm
(0.59 in.)

– PTO clutch (see measurement "b") 18.2 to 18.5 mm
(0.72 to 0.73 in.)

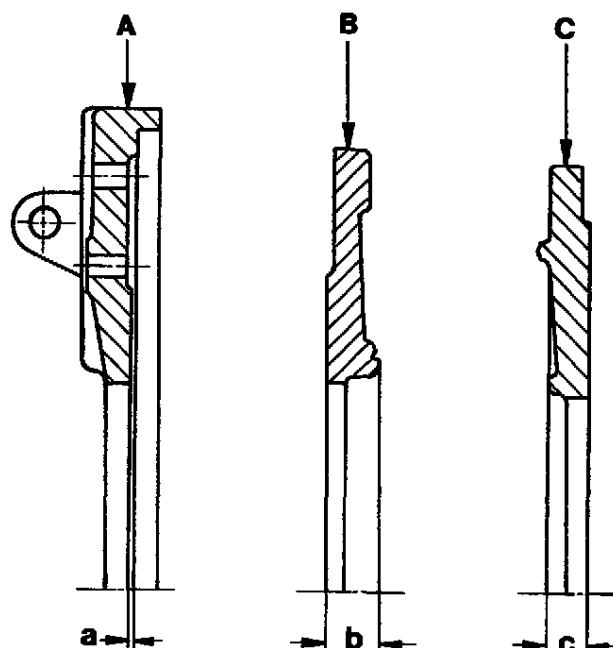
NOTE: Measurements ("a", "b" and "c") refer to new parts.

Maximum permissible wear or roughness 0.15 mm
(0.006 in.)

When base plate and pressure plates are worn by more than 0.15 mm (0.006 in.), then machine base plate and pressure plates up to a maximum of 0.5 mm (0.02 in.).

NOTE: Machine friction face of base plate and pressure plates just sufficient until free from scores, overheated areas and heat cracks. Machine base plate attaching surface by the same amount as machined from friction face.

A–Base plate
B–Pressure plate – PTO clutch
C–Pressure plate – engine clutch



L 119 964

L119964-LB35015AE-010888

CHECKING FLYWHEEL

Distance between friction face and mounting face of flywheel (see measurement "a"):
23.9 to 24.1 mm (0.94 to 0.95 in.)

Distance from face to friction face of flywheel (see measurement "b"):
55.87 to 56.13 mm (2.200 to 2.210 in.)

NOTE: The measurements ("a" and "b") refer to a new flywheel.

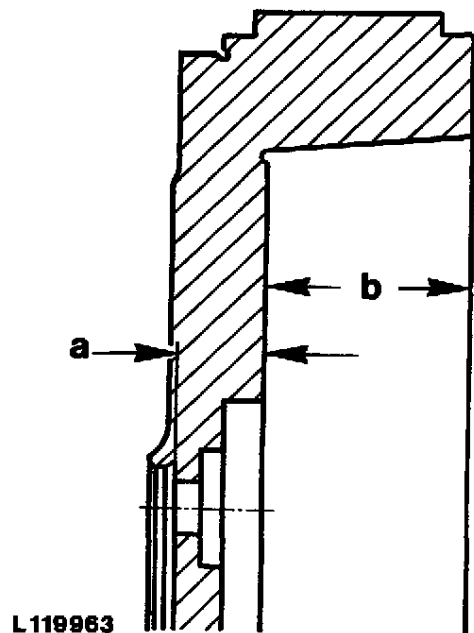
Maximum permissible wear: 0.5 mm (0.02 in.)

Machine flywheel surface when wear is more than 0.5 mm (0.02 in.).

NOTE: Machine flywheel face the same amount as friction face. Machine friction face until it is just free from scores, overheated areas and heat cracks.

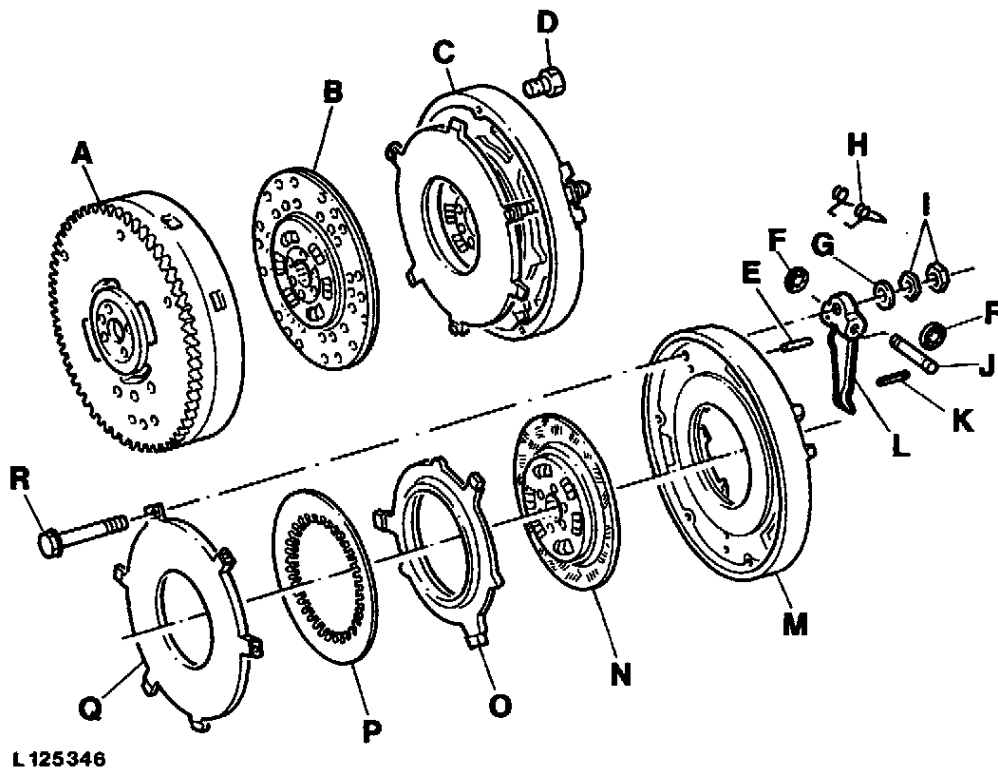
Maximum permissible amount of wear and machining must not exceed 1 mm (0.04 in.).

Maximum permissible roughness of flywheel machined surface: 3.2 μm (126 micro-in.)



L119963-LB35015AE-010888

DUAL-STAGE ENGINE CLUTCH, EXPLODED VIEW



L 125346

A—Flywheel
B—Front clutch disk
C—Clutch assembly
D—Cap screw (6 used)
E—Release pin (3 used)
F—Snap ring (6 used)

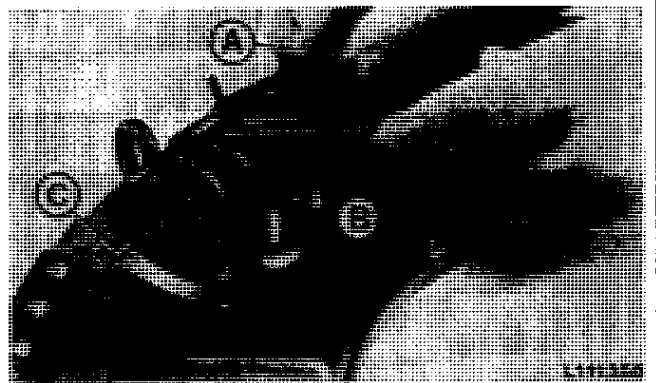
G—Spacer (3 used)
H—Loop spring (3 used)
I—Hex. nut (6 used)
J—Pivot pin (3 used)
K—Spring pin (3 used)
L—Release lever (3 used)

M—Base plate
N—Rear clutch disk (PTO)
O—Rear pressure plate
P—Diaphragm spring
Q—Front pressure plate
R—Operating bolt (3 used)

L125346-LB35015AE-010888

INSTALLING RELEASE LEVERS

NOTE: Coat release pins (B), bores of release levers (C) and pivot pins (A) with MOLYKOTE BR2 grease.

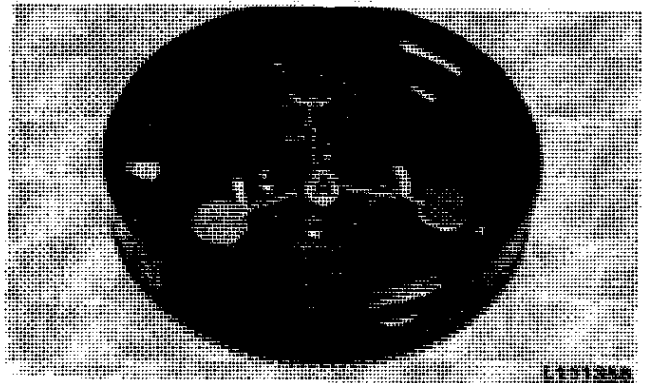


L111355-LB35015AE-010287

ASSEMBLING CLUTCH

Equally space the three spacer disks JDE-143 (A) on clutch disk friction surface of flywheel.

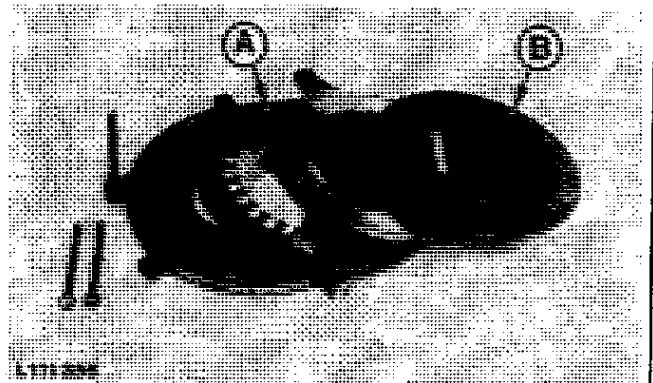
NOTE: When reassembling, observe the marks made during disassembly.



L111358-LB35015AE-010287

Assemble parts in flywheel one after another as shown.

NOTE: Clutch disk (B) with side marked "Schwungrad" (Flywheel) and concave side of diaphragm spring (A) must face towards the flywheel.



L111356-LB35015AE-010287

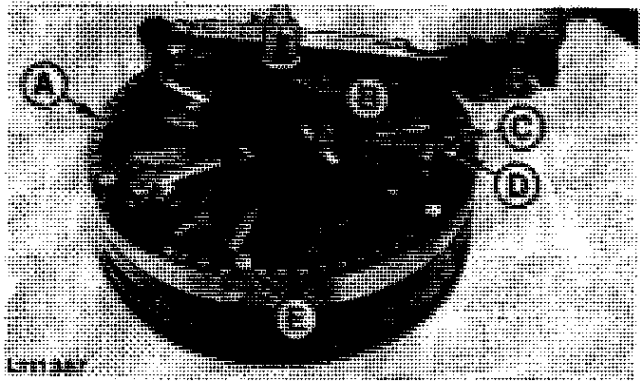
Using special tool 19.58-90.486 (B), align clutch assembly parts from pilot bearing.

Install preassembled base plate (A) and tighten cap screws (E) equally and crosswise to 50 Nm (35 ft-lb).

NOTE: Install one hex. nut (D) only on operating bolt (C). Do not install second hex. nut until release levers have been adjusted.

A—Base plate
B—Special tool
19.58-90.486

C—Operating bolt
D—Hex. nut (3 used)
E—Cap screw (6 used)



L111357-LB35015AE-010287

ADJUSTING RELEASE LEVERS

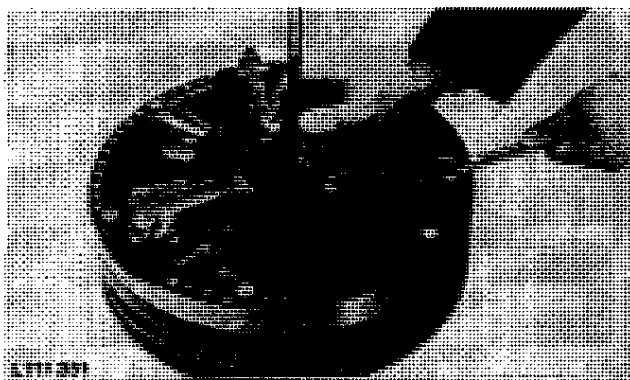
IMPORTANT: The dual-stage clutch can be adjusted in conjunction with its flywheel only.

IMPORTANT: Before each measurement, press operating bolts outward with a screwdriver to obtain the distance from clutch release levers to torsion damper hub with engine running.

The adjusted measurement should be 37 to 37.6 mm (1.46 to 1.48 in.).

NOTE: Maximum permissible difference in height between release levers should not exceed 0.4 mm (0.016 in.).

Press down on all three release levers several times simultaneously. Recheck clearances and adjust, if necessary.

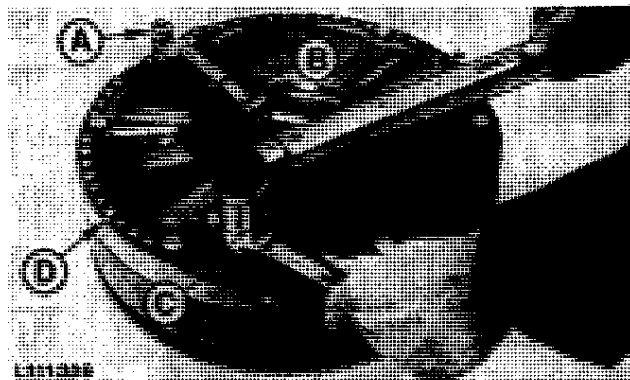


L111351-LB35015AE-000287

Having completed adjustment of release levers, coat threads of operating bolts with Loctite 648 (L41860) and tighten lock nuts (A) to 30 Nm (23 ft-lb).

NOTE: To simplify later installation, place a suitable spacer between each release lever (B) and base plate (D). Height of spacer should be approx. 14 mm (0.55 in.). Then remove clutch assembly from flywheel.

IMPORTANT: Whenever a new clutch assembly or clutch disk only is installed, it is not necessary to adjust the release levers.



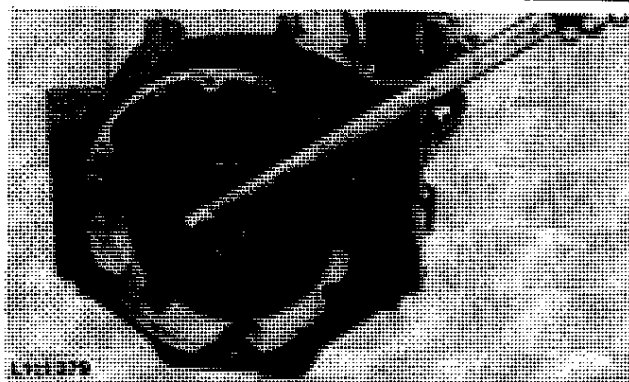
A—Lock nut
B—Release lever

C—Spacer
D—Base plate

L111352-LB35015AE-010287

INSTALLING FLYWHEEL

Tighten cap screws equally crosswise to 160 Nm (120 ft-lb).



L111379-LB35015AE-010287

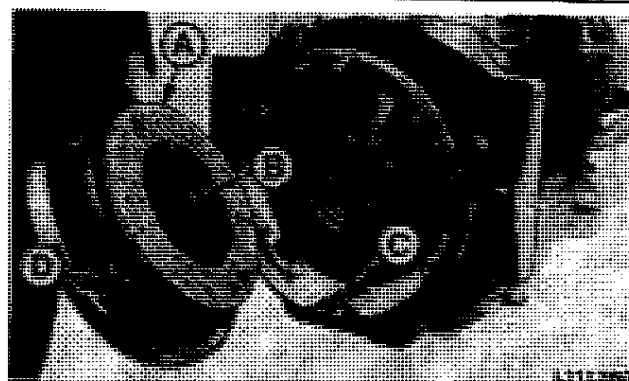
INSTALLING CLUTCH ASSEMBLY

Insert centering tool 19.58-90.486 (B) in clutch assembly and slide clutch disk (A) with side marked "Schwungrad" (Flywheel) facing the flywheel.

Align lugs (D) of pressure plates with slots (C) of flywheel.

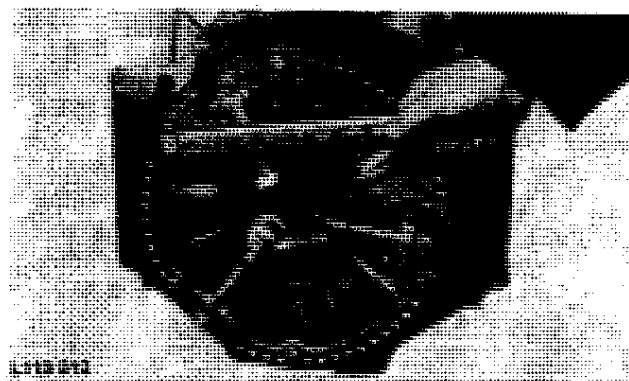
A—Clutch disk
B—Centering tool
19.58-90.486

C—Slot
D—Lug



Tighten cap screws equally and crosswise to 50 Nm (35 ft-lb).

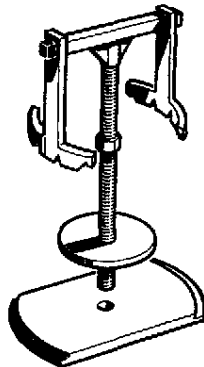
Join tractor between clutch housing and engine (see Section 10, Group 25).



L111360, L113313-LB35015AE-000287

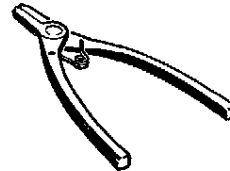
SPECIAL TOOLS

KML 10 005



(A)

JDT-1



(B)

L108002

**A—Removing and installing
Belleville springs of Hi-clutch**

**B—Removing and installing
snap rings**

L108002-LA75015AE-001184

SPECIFICATIONS

TRANSMISSION INPUT SHAFT

Dimensions of New Parts

Dia. of shaft in hub of clutch drum 40.67 to 40.87 mm (1.601 to 1.609 in.)

SOLID DRIVE SHAFT

Dia. of shaft in planet pinion carrier bushing 31.98 to 31.99 mm (1.259 to 1.260 in.)

BRAKE HOUSING

O.D. of hub 133.65 to 133.75 mm (5.262 to 5.267 in.)

I.D. of hub 76.20 to 76.21 mm (3.000 to 3.001 in.)

Dia. of bore for bushing in brake housing 87.99 to 88.01 mm (3.464 to 3.465 in.)

I.D. of bore for bushing in brake housing 85.27 to 85.30 mm (3.357 to 3.358 in.)

O.D. of disk brake piston 186.87 to 187.13 mm (7.357 to 7.367 in.)

I.D. of disk brake piston 133.98 to 134.02 mm (5.275 to 5.276 in.)

LSGETR-LA75015AE-091184

BRAKE HOUSING (CONTD.)

Dimensions of New Parts

O.D. of a Belleville spring	
– up to serial no. 646 599L	193.6 to 194 mm (7.622 to 7.638 in.)
– from serial no. 646 600L	194 to 194.5 mm (7.638 to 7.657 in.)

CLUTCH DRUM

O.D. of hub with annular groove	75.17 to 75.43 mm (2.960 to 2.970 in.)
O.D. of drum in brake housing bushing	84.98 to 85.03 mm (3.346 to 3.348 in.)
I.D. of hub (transmission input shaft)	41.26 to 41.29 mm (1.624 to 1.626 in.)
O.D. of disk clutch piston	123.19 to 123.45 mm (4.850 to 4.860 in.)
I.D. of disk clutch piston	57.12 to 57.17 mm (2.249 to 2.251 in.)

PLANET PINION CARRIER

I.D. of carrier bushing	32.11 to 32.16 mm (1.264 to 1.266 in.)
Dia. of bore for bushing in carrier	34.99 to 35.01 mm (1.378 to 1.379 in.)
Dia. of bores for planet pinion pins in carrier	19.95 to 19.97 mm (0.786 to 0.787 in.)
Dia. of planet pinion pin	19.93 to 19.95 mm (0.785 to 0.786 in.)
Dia. of bore in planet pinion	28.70 to 28.72 mm (1.130 to 1.131 in.)
Width of a planet pinion	40.64 to 40.80 mm (1.600 to 1.606 in.)

DISK CLUTCH AND BRAKE

Thickness of an external splined brake disk	
– Thin disk	2.30 mm (0.091 in.)
– Thick disk	4.37 to 4.63 mm (0.172 to 0.182 in.)
Thickness of an internal splined brake disk	2.21 to 2.37 mm (0.087 to 0.093 in.)
Thickness of an external splined clutch disk	1.50 mm (0.059 in.)
Thickness of an internal splined clutch disk	2.44 to 2.54 mm (0.096 to 0.100 in.)
Height of a brake Belleville spring	approx. 5.61 mm (0.221 in.)
Height of a clutch Belleville spring	approx 3.23 mm (0.127 in.)

LSGETR-LB25015BE-010488

Hi-Lo Shift Unit

SPRINGS

Dimensions of New Parts

Control valve detent spring	
– Free length,	approx. 49.5 mm (1.949 in.)
– Spring tension at a length of 36.5 mm (1.429 in.)	50 to 60 N (11 to 13 lb)
Control valve spool spring	
– Free length,	approx. 71.0 mm (2.795 in.)
– Spring tension at a length of 43.0 mm (1.700 in.)	220 to 270 N (49 to 60 lb)
Automatic shift valve spring	
– Free length,	approx. 71.0 mm (2.795 in.)
– Spring tension at a length of 43.5 mm (1.713 in.)	55 to 65 N (12 to 15 lb)
Pressure regulating valve outer spring	
– Free length,	approx. 129.0 mm (5.079 in.)
– Spring tension at a length of 64 mm (2.520 in.)	95 to 120 N (22 to 26 lb)
Pressure regulating valve inner spring	
– Free length,	approx. 182.0 mm (7.165 in.)
– Spring tension at a length of 109 mm (4.291 in.)	85 to 105 N (19 to 23 lb)

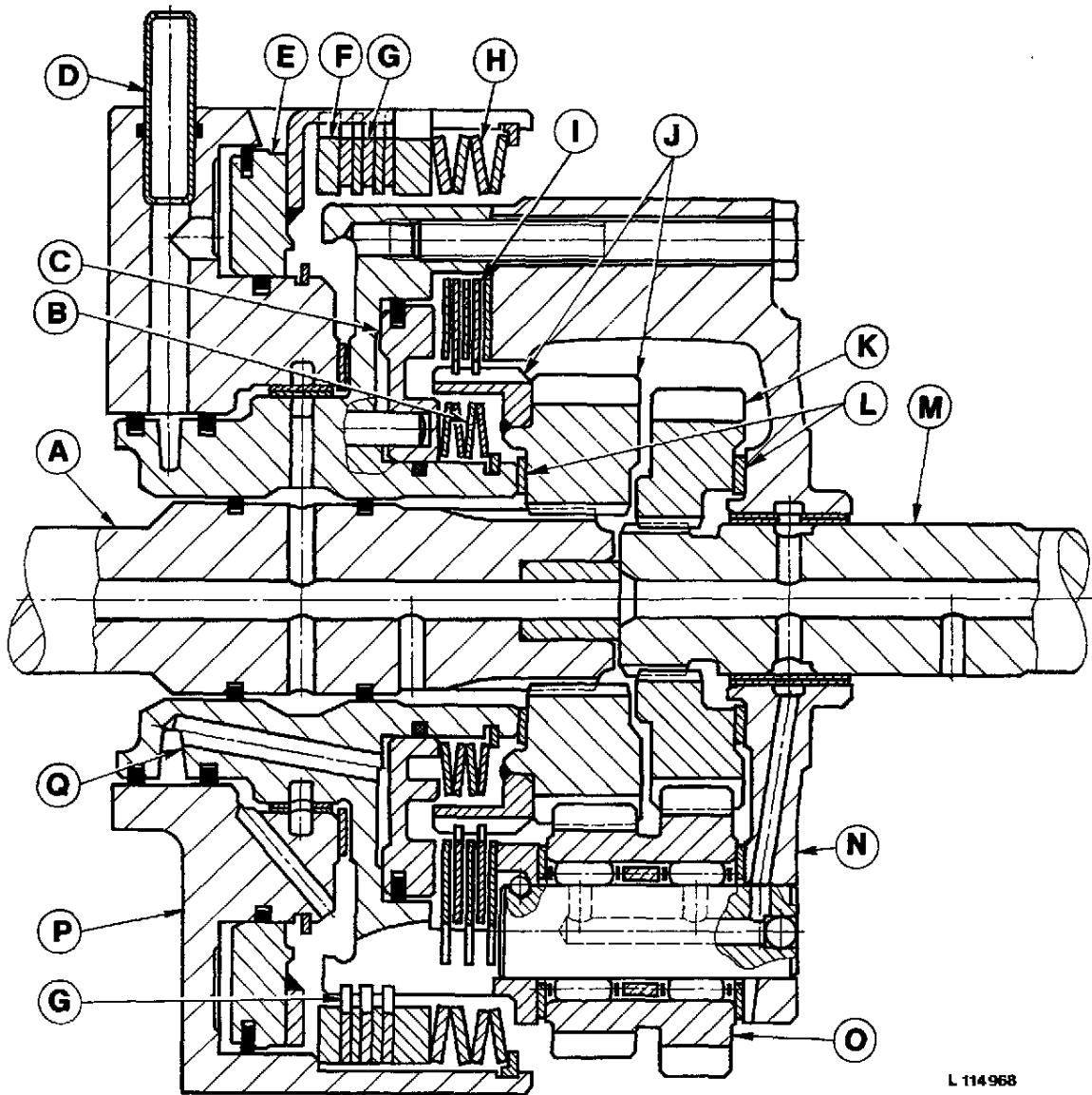
LSGETR-LA75015CE-091184

TORQUES FOR HARDWARE

Planet pinion carrier to clutch drum, cap screws	30 Nm (23 ft-lb)
Manifold cover to transmission shift cover, cap screws	30 Nm (23 ft-lb)
Hi-Lo shift unit to clutch housing, cap screws	50 Nm (35 ft-lb)

LSGETR-LA75015DE-001184

HI-LO SHIFT UNIT, SECTIONAL VIEW



L 114 968

A—Transmission input shaft
B—Hi-clutch Belleville springs
C—Hi-clutch piston
D—Pressure oil passage to Hi-clutch and Lo-brake piston
E—Lo-brake piston

F—External splined brake disks
G—Internal splined brake disks
H—Lo-brake Belleville springs
I—External splined clutch disks
J—Sun gear with clutch hub
K—Sun gear

L—Thrust disks
M—Solid drive shaft
N—Planet pinion carrier
O—Planet pinion (3 used)
P—Brake housing
Q—Clutch drum

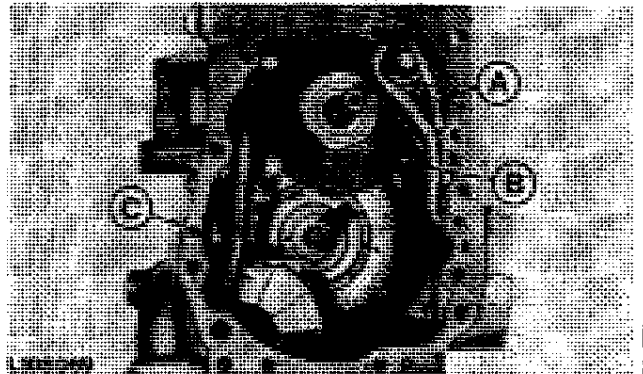
L114968-LB35020AE-010287

Hi-Lo Shift Unit

REMOVING HI-LO SHIFT UNIT

Remove transmission shift cover and separate tractor between transmission case and clutch housing (see Section 10, Group 25).

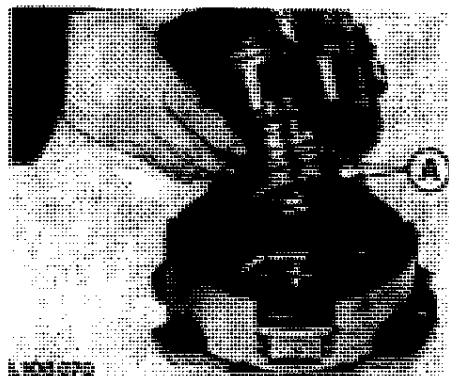
Remove oil lines (A and C) and Hi-Lo shift unit (B).



L108069-LB75015AE-091184

REMOVING PLANETARY GEAR

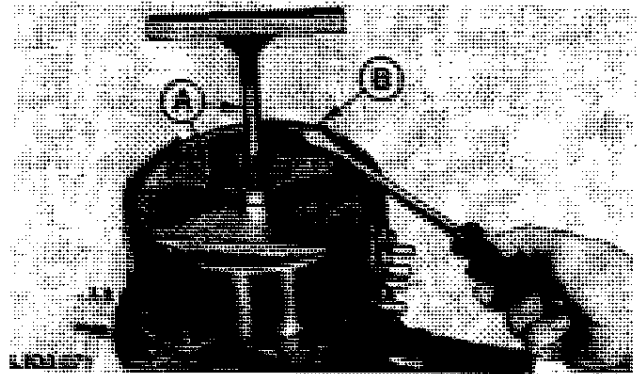
Make sure that seal rings (A) are not damaged.



L108070-LA75015AE-091184

DISASSEMBLING LO-BRAKE

Compress Belleville springs with special tool KML10005 (A) and remove snap ring (B).

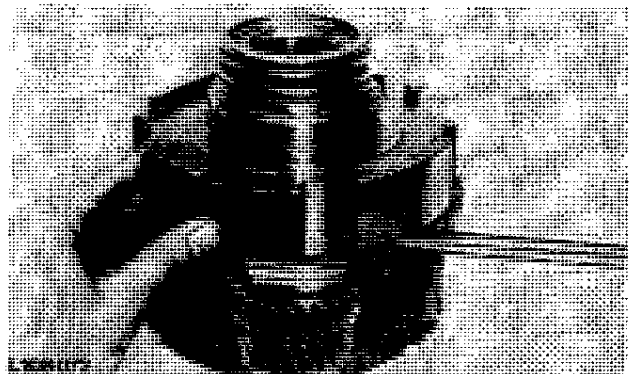


L108071-LA75015AE-091184

DISCONNECTING CLUTCH DRUM FROM PLANET PINION CARRIER

Remove planetary gear sets.

NOTE: Use relevant illustrations as a guide when removing and installing planetary gear sets.



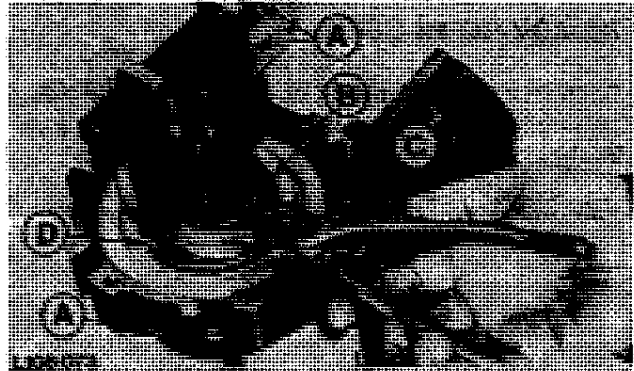
L108072-LB25015AE-010886

DISASSEMBLING HI-CLUTCH

Compress Belleville springs (D) with special tool KML10005 (A) and remove snap ring (B) with special pliers JDT-1 (C).

A—Special tool KML10005
B—Snap ring

C—Special pliers JDT-1
D—Belleville springs

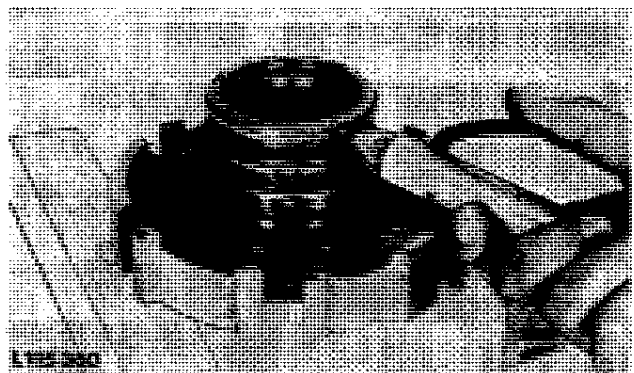


L108073-LA75015AE-091184

REMOVING HI-CLUTCH PISTON

Turn housing over and strike against wooden block to remove piston.

NOTE: If this does not loosen piston then remove with compressed air as shown.



L115380-LB35020AE-010287

REPAIRING CONTROL VALVE ASSEMBLY



CAUTION: Unscrew plugs of pressure regulating valve and automatic shift valve with care as they are under strong spring pressure.

Check spring tension and compare with specifications. Replace springs if required.

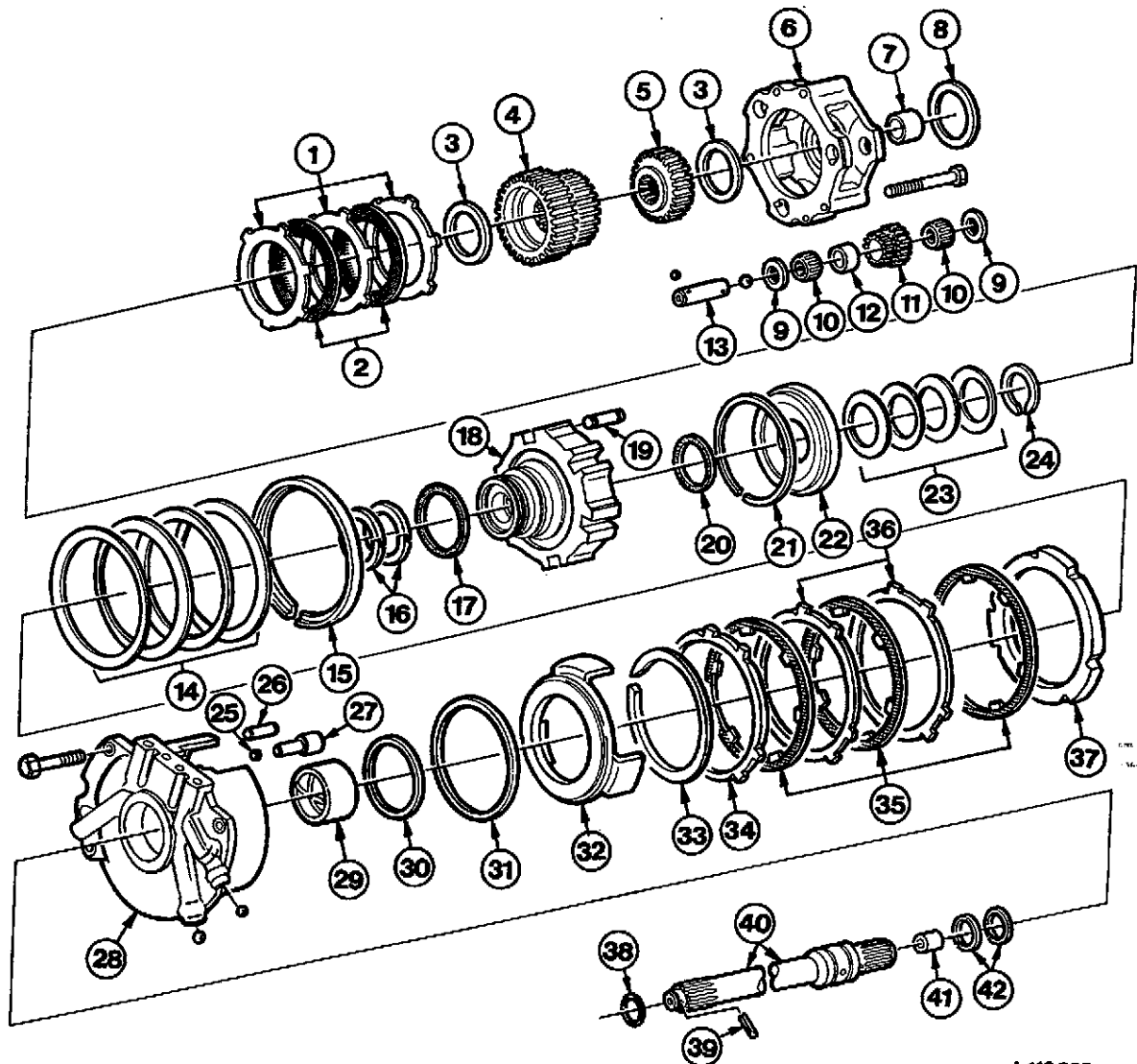
Check outer diameters of valves and corresponding bores in transmission shift cover and compare with specifications.

Replace transmission shift cover completely if transmission shift cover or one of the above mentioned valves is damaged or worn.

NOTE: Apply brake fluid to cup seal before installing detent piston.

LSGETR-LA75015EE-010287

HI-LO SHIFT UNIT, EXPLODED VIEW



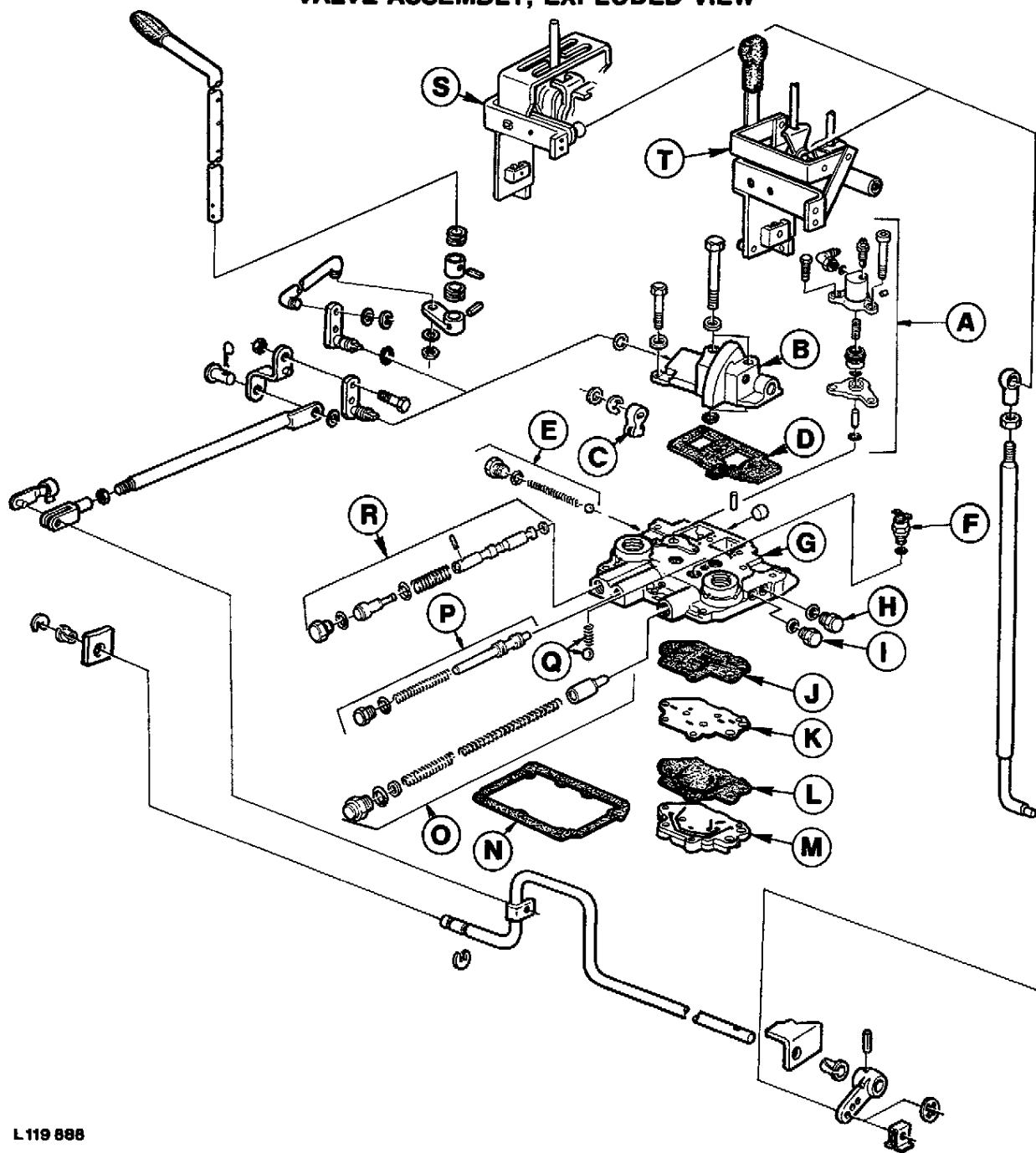
L 119 826

- 1-External splined clutch disk (3 used)
- 2-Internal splined clutch disk (2 used)
- 3-Thrust washer (2 used)
- 4-Sun gear with clutch hub
- 5-Sun gear
- 6-Planet carrier
- 7-Bushing
- 8-Thrust washer
- 9-Thrust washer (3 used)
- 10-Needle bearing (6 used)
- 11-Planet pinion (3 used)
- 12-Spacer (3 used)
- 13-Bearing pin (3 used)
- 14-Lo-Brake Belleville springs (4 used)

- 15-Snap ring
- 16-Seal rings
- 17-Thrust washer
- 18-Clutch drum
- 19-Dowel pin (3 used)
- 20-Seal ring
- 21-Piston ring
- 22-Piston
- 23-Hi-Clutch Belleville springs
- 24-Snap ring
- 25-Valve ball
- 26-Dowel pin
- 27-Priority valve
- 28-Brake housing

- 29-Bushing
- 30-Seal ring
- 31-Seal ring
- 32-Brake piston
- 33-Snap ring
- 34-External splined brake disk
- 35-Internal splined brake disk (3 used)
- 36-External splined brake disk (2 used)
- 37-Brake plate
- 38-O-ring
- 39-Spring pin
- 40-Transmission input shaft
- 41-Bushing
- 42-Seal rings

TRANSMISSION SHIFT COVER AND CONTROL VALVE ASSEMBLY, EXPLODED VIEW



L 119 888

A-Detent device*

B-Cover

C-Control valve arm

D-Gasket

E-Spool stop

F-Hi-Lo oil pressure switch*

G-Transmission shift cover

H-Plug (operating pressure)

I-Plug

J-Gasket

K-Plate

L-Gasket

M-Manifold cover

N-Gasket

O-Pressure regulating valve

P-Automatic shift valve

Q-Check valve

R-Hi-Lo shift unit control

valve assembly

S-Shift lever assembly**

T-Shift lever assembly**

* When equipped

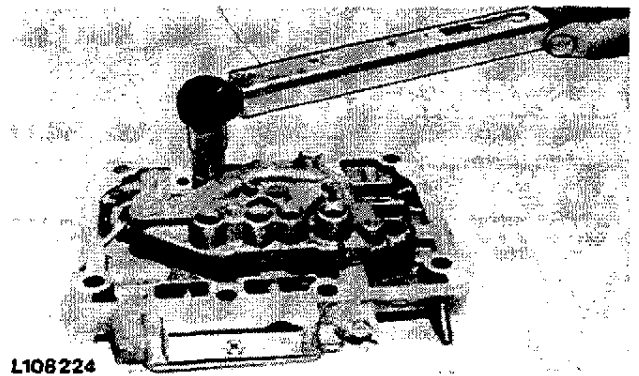
** Depending upon type

L119888-LB35020AE-010888

INSTALLING MANIFOLD COVER

Tighten manifold cover mounting screws to 30 Nm (23 ft-lb).

NOTE: Screw in both longer cap screws from above.



L108224

L108224-LA75015AE-001184

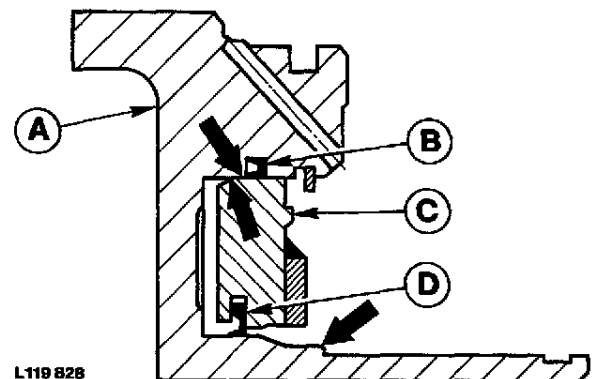
REPLACING BRAKE HOUSING OR BRAKE PISTON SEAL RINGS

Remove burrs (see arrows).

IMPORTANT: Coat seal rings (B and D) with multi-purpose grease after they have been installed.

A-Brake housing
B-Seal ring

C-Brake piston
D-Seal ring



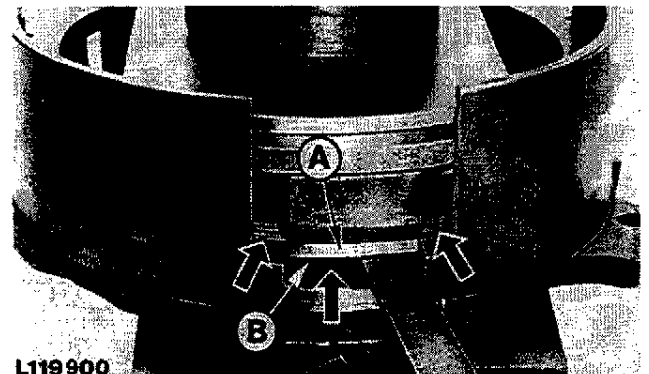
L119828

L119828-LB25015AE-010488

INSTALLING BRAKE PISTON

Press in brake piston (A) up to stop, making sure it does not cant.

Slide seal lips of seal ring (B) over the edge (see arrows).



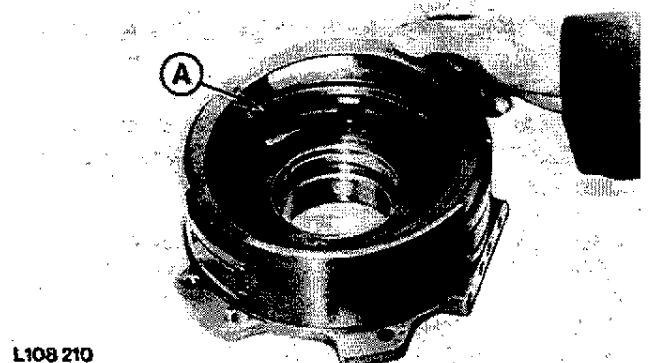
L119900

L119900-LB25015AE-010488

ASSEMBLING LO BRAKE

Begin with an external splined disk when assembling brake disks. Install Belleville springs alternately, beginning with concave side towards brake plate (A).

NOTE: Replace Belleville springs L33161 (O.D. of 193.6 to 194.0 mm; 7.622 to 7.638 in.) with Belleville springs L62954 (O.D. of 194.0 to 194.5 mm; 7.638 to 7.657 in.).



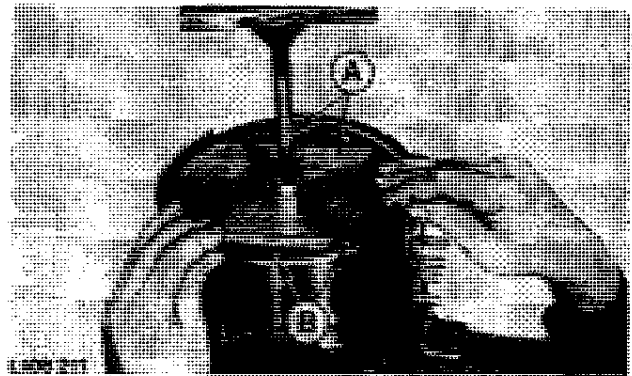
L108210

L108210-LB35020AE-010888

COMPRESSING LO BRAKE BELLEVILLE SPRINGS

Compress Belleville springs with special tool KML10005 (A) and fit snap ring (B).

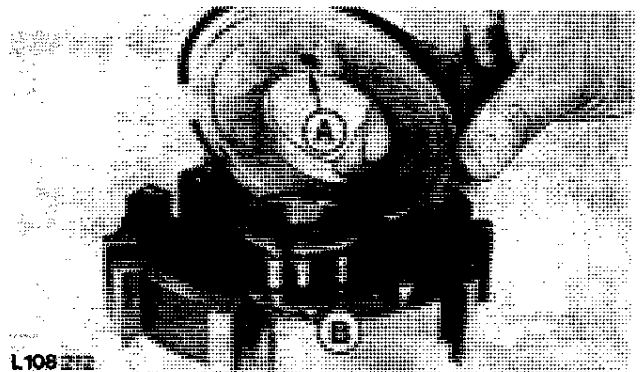
NOTE: Install snap ring (B) so that ends of snap ring are within ribbed sections of housing.



L108211-LB35020AE-010888

INSTALLING PISTON

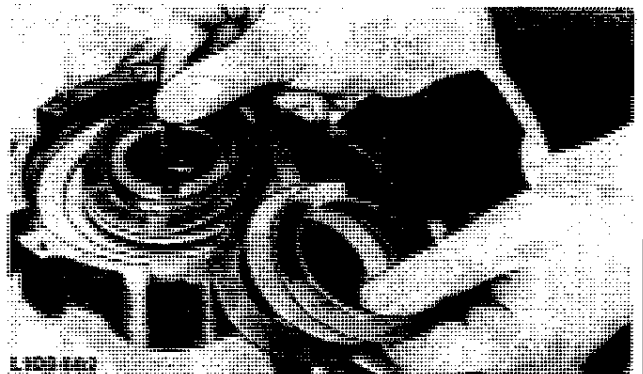
Align bore in piston (A) with pin (B) in clutch drum.



L108212-LA75015AE-091184

INSTALLING HI CLUTCH BELLEVILLE SPRINGS

Install first Belleville spring so that convex side points to piston. Install Belleville springs alternately.



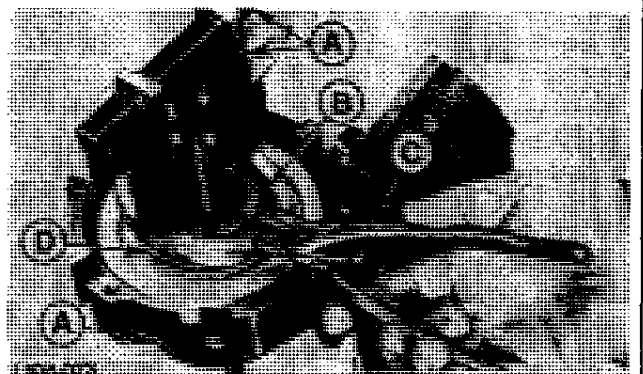
L108662-LA75015AE-091184

COMPRESSING HI CLUTCH BELLEVILLE SPRINGS

Compress Belleville springs (D) with special tool KML10005 (A) and insert snap ring (B) with special pliers JDT-1 (C).

A—Special tool KML10005
B—Snap ring

C—Special tool JDT-1
D—Belleville springs

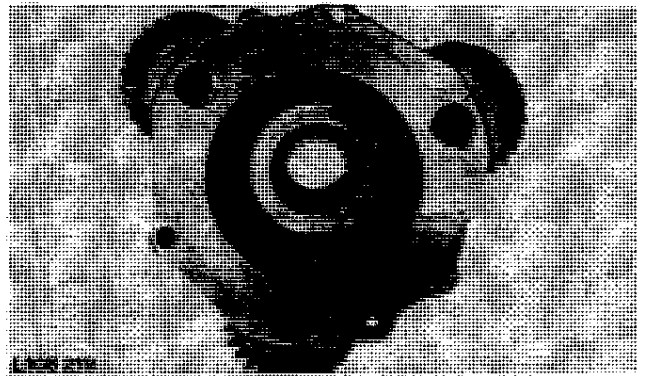


L108073-LA75015BE-091184

ASSEMBLING PLANET PINION CARRIER

NOTE: Before installing sun gears, coat thrust washers or thrust bearings with transmission oil.

Observe markings on sun gear and planet gears during installation.



L108219-LB25015AE-010886

INSTALLING CLUTCH DISKS

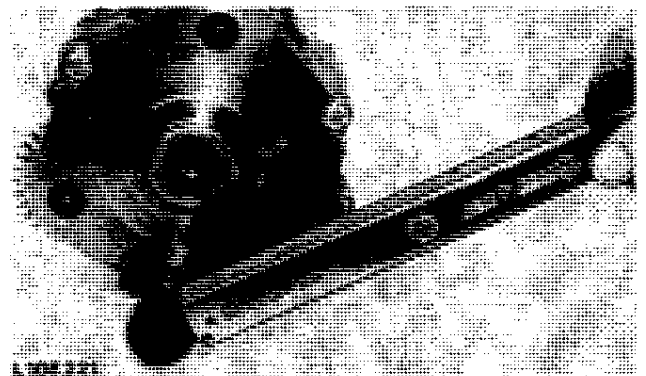
Install external and internal splined clutch disks, beginning with an external splined disk.



L108220-LA75015AE-091184

SECURING PLANET PINION CARRIER TO CLUTCH DRUM

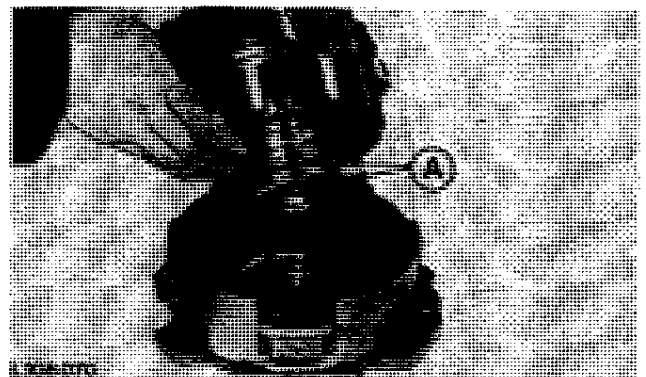
Tighten cap screws to 30 Nm (23 ft-lb).



L108221-LA75015AE-091184

INSERTING PLANETARY GEAR INTO BRAKE HOUSING

NOTE: Make sure that thrust washer is installed and splines of disks fit into machined recesses. Do not damage seal rings (A).



L108070-LA75015BE-091184

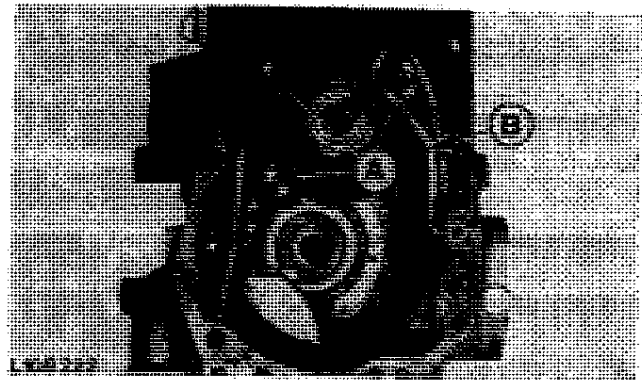
INSTALLING HI-LO SHIFT UNIT

NOTE: PTO shaft clutch supply line must be guided into bore (B) of brake housing.

Coat cap screws (A) with LOCTITE 270 (L41476) and tighten to 50 Nm (35 ft-lb).

NOTE: Insert transmission input shaft into Hi-Lo shift unit, taking care not to damage seal rings.

Join tractor between clutch housing and transmission housing as described in Section 10, Group 25.



L108222-LA75015AE-091184

SPECIFICATIONS

Dimensions of New Parts

HUB CARRIER

Diameter of bore in hub carrier and cover for shaft of double gear	19.99 to 20.02 mm (0.787 to 0.788 in.)
Diameter of bore for hub carrier cover	122.00 to 122.04 mm (4.803 to 4.805 in.)
Pre-load of taper roller bearings (adjustment by means of shims in carrier cover)	0.05 mm (0.002 in.)

CREEPER TRANSMISSION

Diameter of bore in gear	41.11 to 41.13 mm (1.618 to 1.619 in.)
Diameter of shaft	19.98 to 20.00 mm (0.787 to 0.788 in.)
Diameter of bearing bore on double gear	28.00 to 28.01 mm (1.102 to 1.103 in.)
Width of double gear	92.36 to 92.50 mm (3.636 to 3.642 in.)
Thickness of a thrust washer	0.88 mm (0.036 in.)

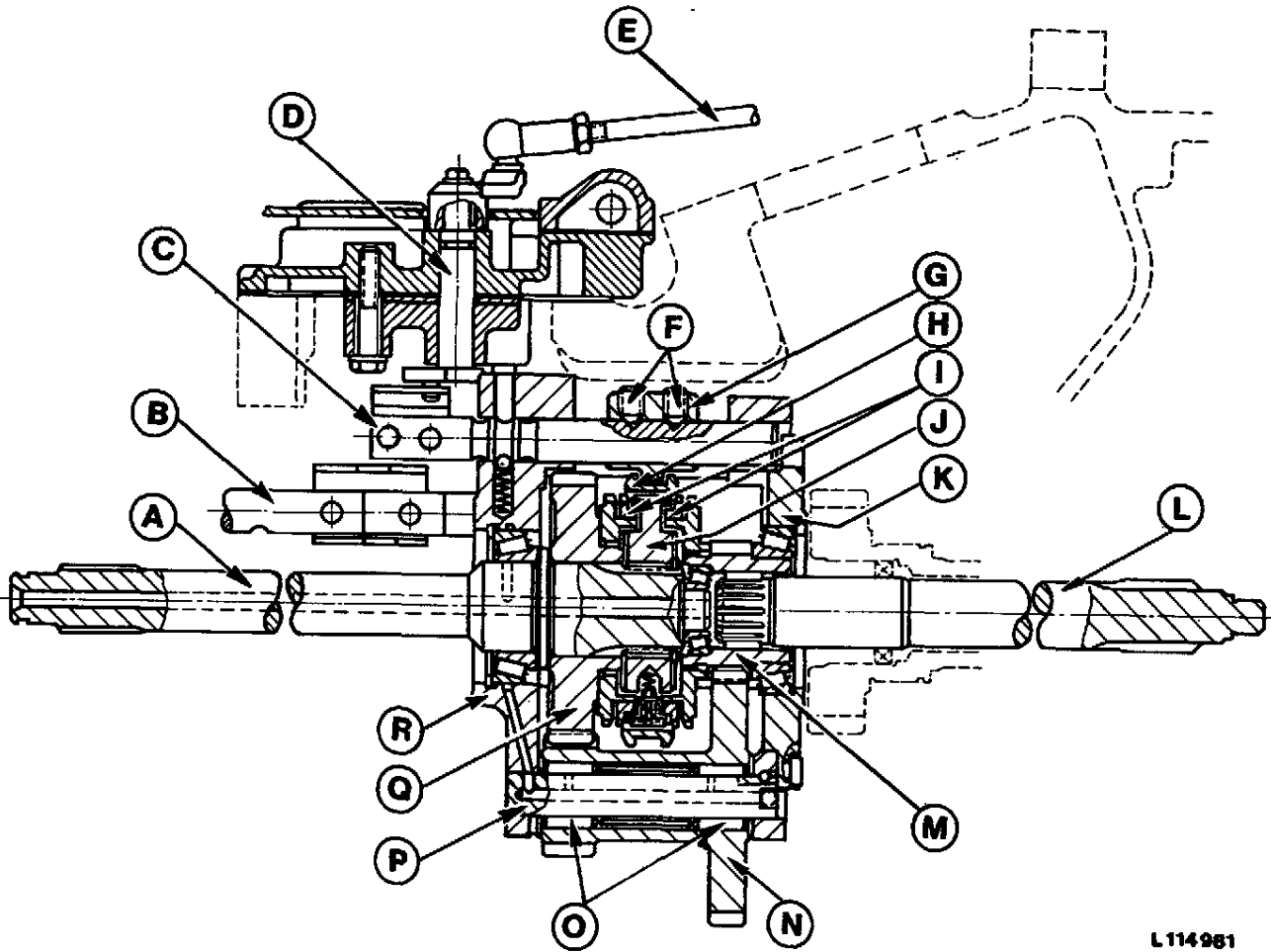
CREEP-LB35025AE-010287

TORQUES FOR HARDWARE

Bearing quill to creeper transmission housing, hex. socket screws	25 Nm (20 ft-lb)
Shifter fork, set screws	40 Nm (30 ft-lb)
Shifter lever to shifter shaft, special screw	0.5 Nm (0.37 ft-lb)
Creeper transmission housing to clutch housing, cap screws	50 Nm (35 ft-lb)

CREEP-LB25020BE-010886

CREEPER TRANSMISSION, SECTIONAL VIEW



L 114 981

A-Transmission input shaft
B-Shifter rod, range II
C-Shifter rod
D-Shifter shaft
E-Connecting rod
F-Set screw

G-Shifter fork
H-Shifter collar
I-Synchronizer rings
J-Synchronizer body
K-Bearing quill
L-Solid drive shaft

M-Gear
N-Double gear
O-Needle bearings
P-Shaft
Q-Gear
R-Hub carrier

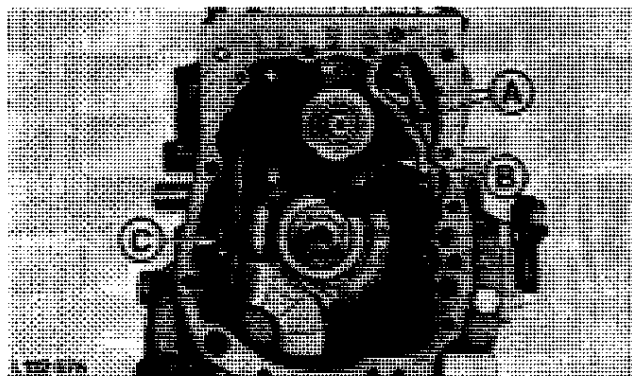
L114981-LB25020AE-010886

REMOVING CREEPER TRANSMISSION

Remove transmission shift cover and separate tractor between transmission housing and clutch housing (see Section 10, Group 25).

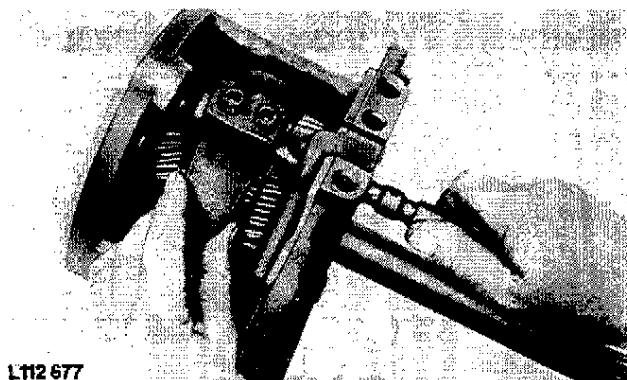
Remove oil lines (A and C) and creeper transmission assembly (B).

NOTE: When removing creeper transmission, be sure not to lose locking pin.



L112676-LB25020AE-010886

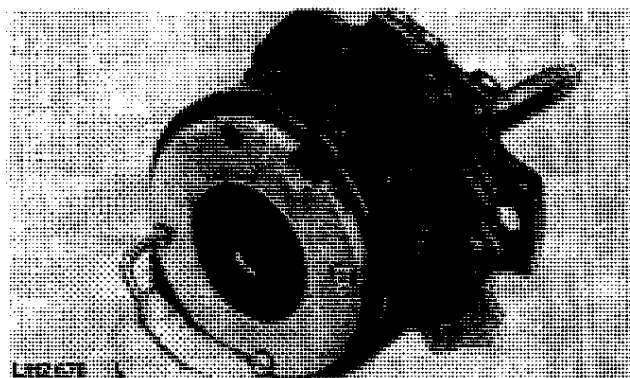
REMOVING SHIFTER ROD AND SHIFTER FORK



L112 677

L112677-LB25020AE-010886

REMOVING BEARING QUILL



L112 678

L112678-LB25020AE-010886

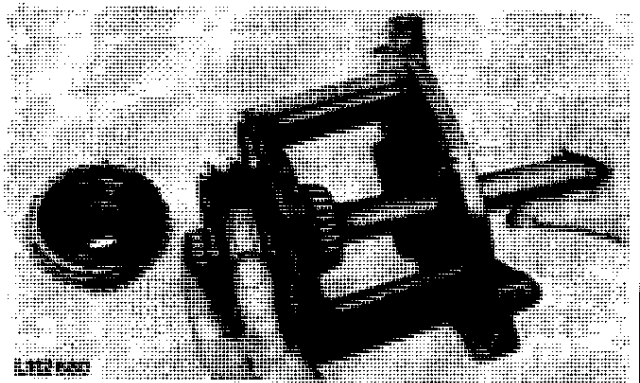
REMOVING DOUBLE GEAR

NOTE: Make sure that detent ball is not lost.



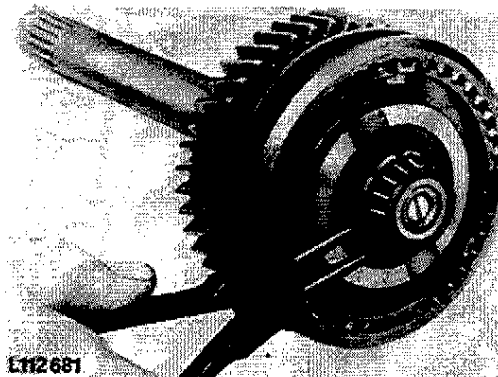
L112679-LB25020AE-000886

REMOVING TRANSMISSION INPUT SHAFT FROM HOUSING



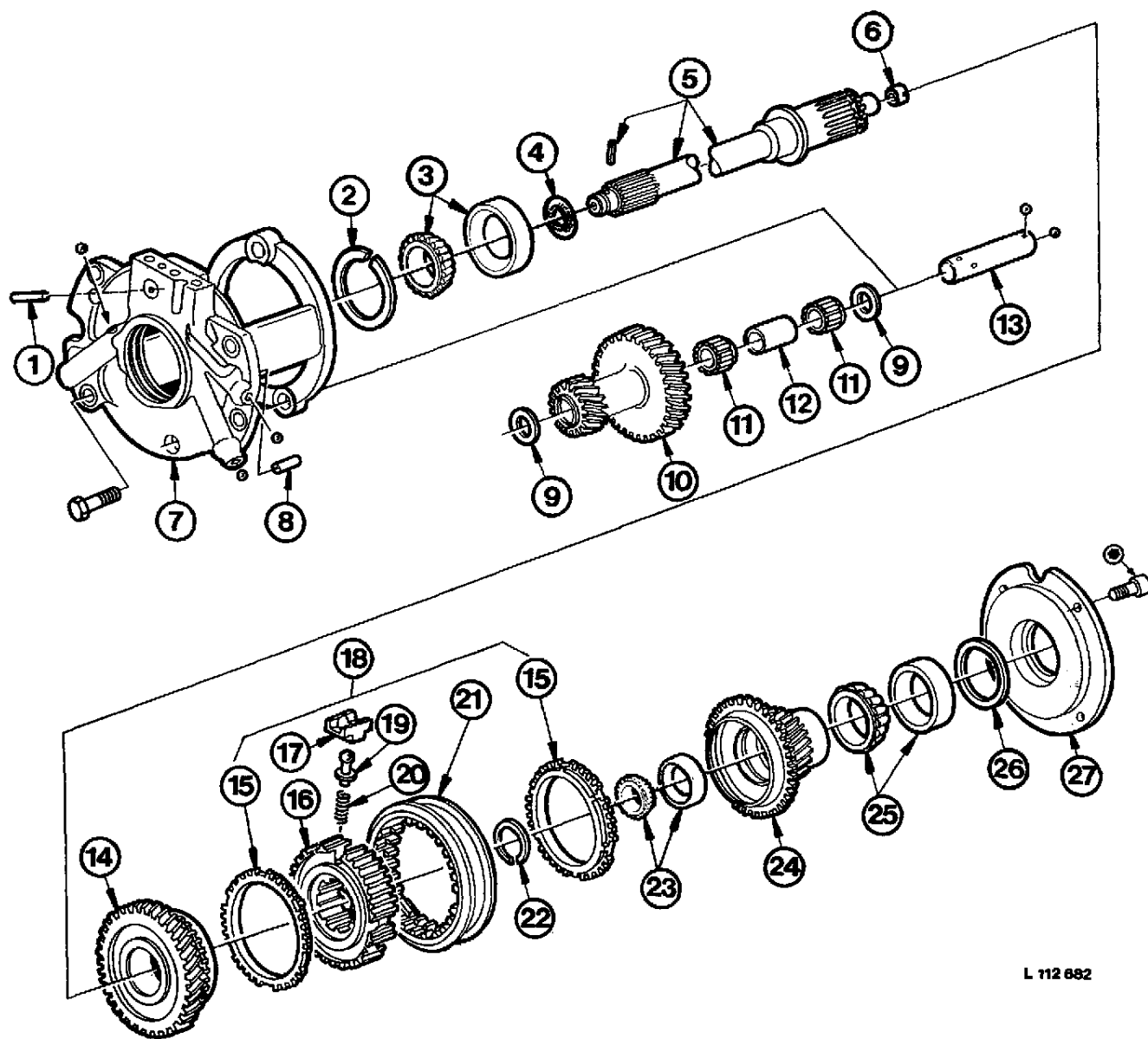
L112680-LB25020AE-010886

REMOVING SYNCHRONIZER ASSEMBLY



L112681-LB25020AE-010886

CREEPER TRANSMISSION, EXPLODED VIEW



L 112 682

- 1-Locking pin
- 2-Snap ring
- 3-Taper roller bearing
- 4-O-ring
- 5-Transmission input shaft
- 6-Bushing
- 7-Hub carrier
- 8-Dowel pin
- 9-Thrust washer

- 10-Double gear
- 11-Needle bearing
- 12-Spacer sleeve
- 13-Shaft
- 14-Gear
- 15-Synchronizer ring
- 16-Synchronizer body
- 17-Thrust block (3 used)
- 18-Synchronizer assembly

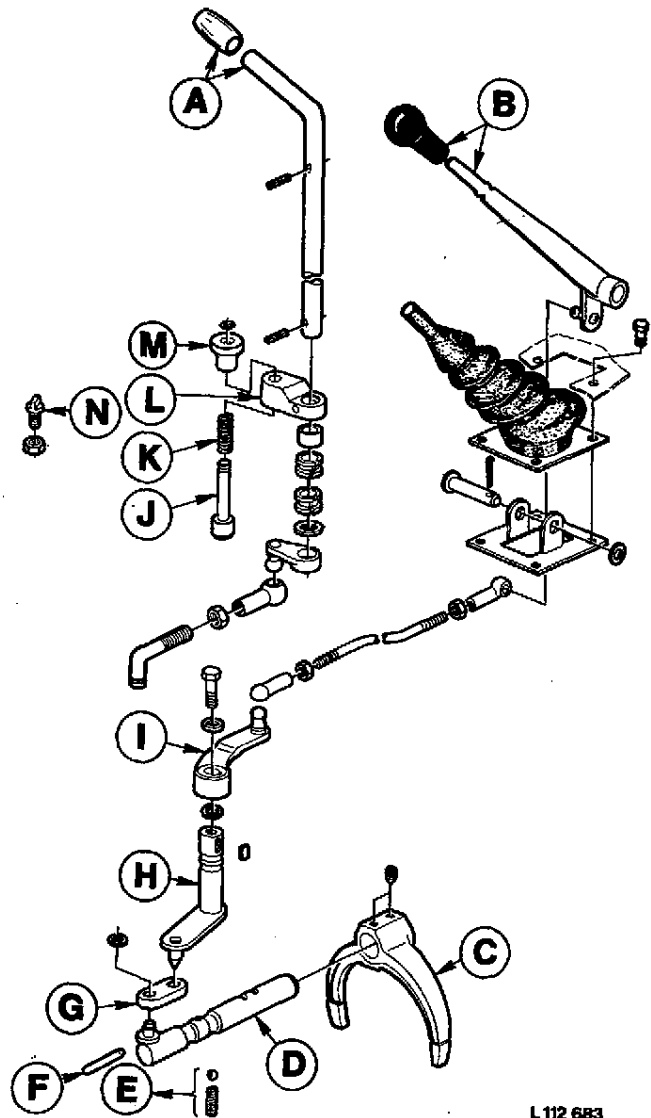
- 19-Ball joint (3 used)
- 20-Spring (3 used)
- 21-Shifter collar
- 22-Snap ring
- 23-Taper roller bearing
- 24-Gear
- 25-Taper roller bearing
- 26-Shim (use as required)
- 27-Bearing quill

L112682-LB25020AE-010886

CONTROL LEVER LINKAGE, EXPLODED VIEW

- A—Control lever*
- B—Control lever**
- C—Shifter fork
- D—Shifter rod
- E—Detent spring and ball
- F—Locking pin
- G—Link
- H—Shifter shaft
- I—Lever**
- J—Pin*
- K—Spring*
- L—Lever*
- M—Adapter*
- N—Special screw*

- * On tractors without cab or with MC1 cab
- ** On tractors with SG2 cab



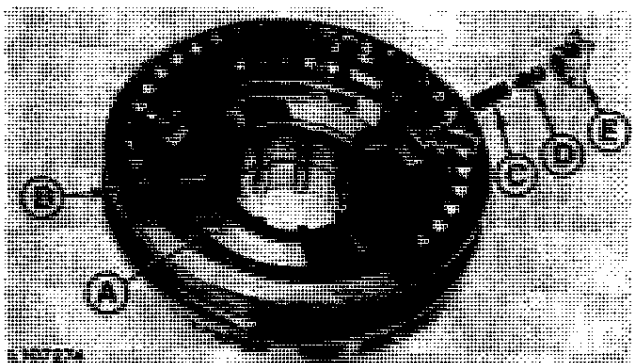
L 112 683

L112683-LB35025AE-010287

ASSEMBLING SYNCHRONIZER ASSEMBLY

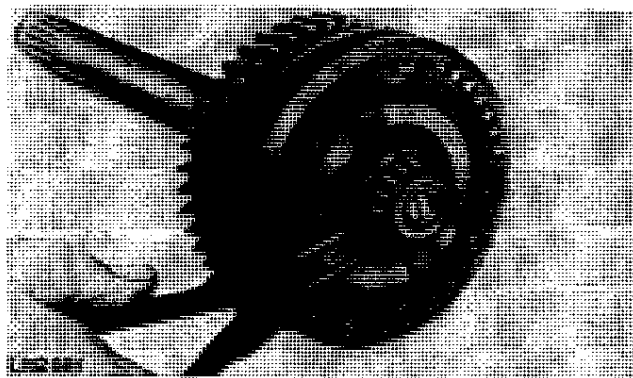
Install synchronizer body (A) so that thrust blocks (E) with ball pin (D) and spring (C) engage in third tooth of shifter collar (B).

- A—Synchronizer body
- B—Shifter collar
- C—Spring
- D—Ball pin
- E—Thrust block



L107274-LA75025AE-000886

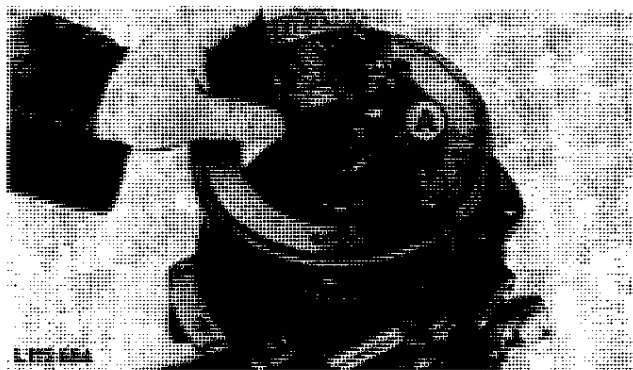
INSTALLING SYNCHRONIZER ASSEMBLY



L112681-LB25020AE-010886

INSTALLING TRANSMISSION INPUT SHAFT AND GEARS

NOTE: Make sure that bushing (A) is installed in the transmission input shaft.

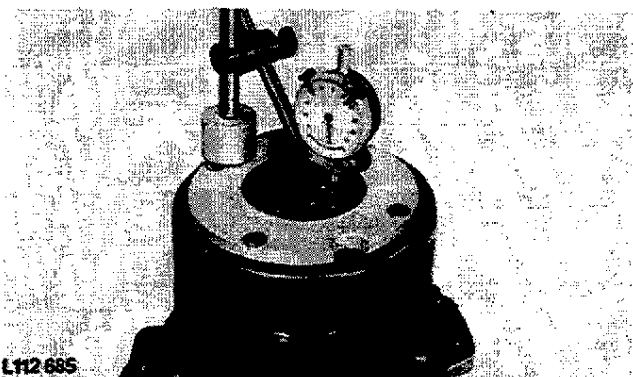


L112684-LB25020AE-010886

DETERMINING TAPER ROLLER BEARING PRELOAD

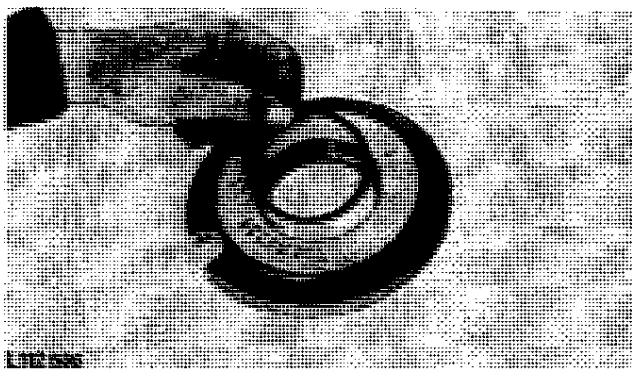
Install taper roller bearing cup in bearing quill without shims.

Install bearing quill and measure bearing end play.



L112685-LB25020AE-010488

Install a number of shims between bearing quill and bearing cup to equal the measured end play plus a preload of 0.05 mm (0.002 in.).

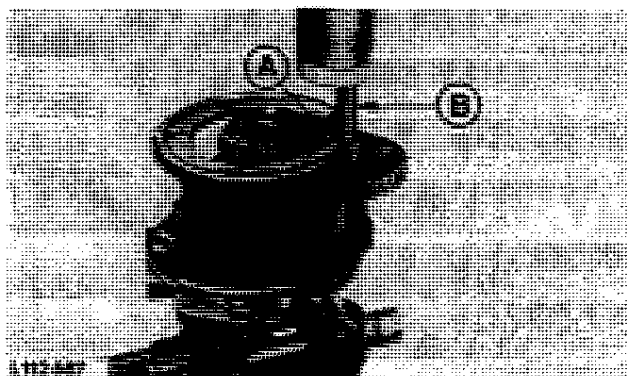


L112686-LB25020AE-010886

INSTALLING DOUBLE GEAR

Insert shaft (B) so far into bore until detent ball can just be installed in bore of shaft.

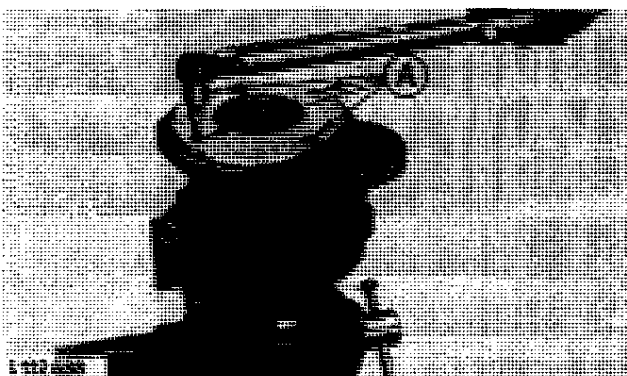
Drive shaft (B) with detent ball into recess (A).



L112687-LB25020AE-010886

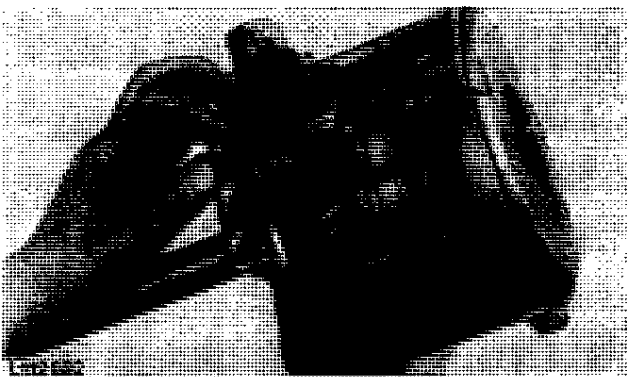
INSTALLING BEARING QUILL

Coat hex. socket screws (A) with LOCTITE 270 (L 41476) and tighten to 25 Nm (18 ft-lb).



L112688-LB25020AE-010886

INSTALLING DETENT BALL AND SPRING IN HUB CARRIER

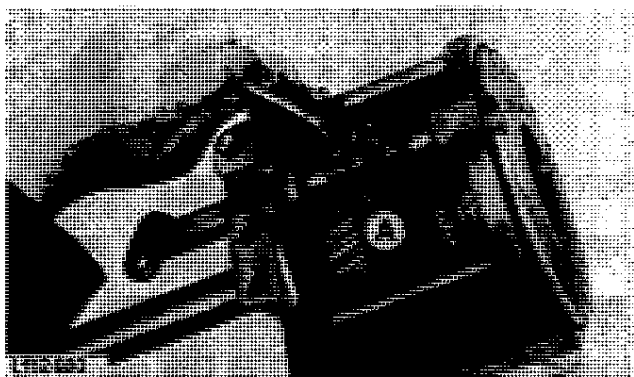


L112692-LB25020AE-010886

INSTALLING SHIFTER ROD AND SHIFTER FORK

By means of set screws (A), adjust shifter forks so that engagement and disengagement of creeper transmission can be accomplished correctly.

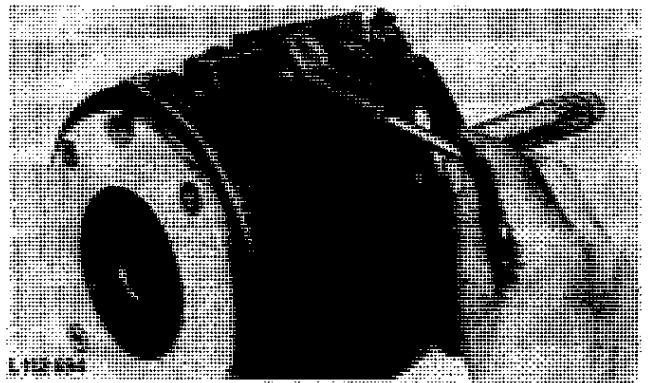
Tighten set screws (A) to 40 Nm (30 ft-lb).



L112693-LB25020AE-010886

INSTALLING LOCKING PIN

NOTE: Coat locking pin with grease and insert in bore.



L112694-LB25020AE-010886

INSTALLING CREEPER TRANSMISSION ASSEMBLY

NOTE: The inlet line of PTO clutch must be guided into bore (B) of hub carrier.

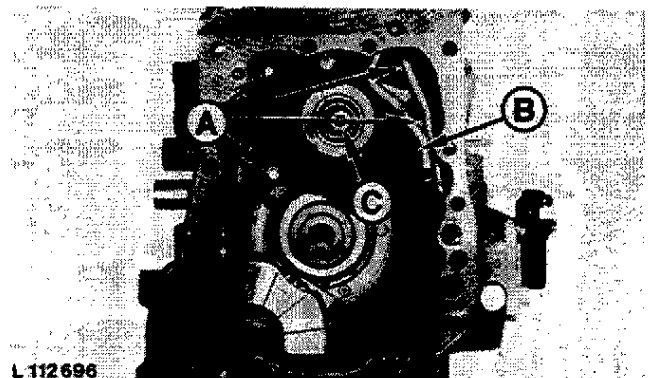
Coat cap screws (A) with LOCTITE 270 (L 41476) and tighten to 50 Nm (35 ft-lb).

Install new O-ring (C).

Join tractor between clutch housing and transmission case (see Section 10, Group 25).

NOTE: Make sure that locking pin does not fall out when joining the tractor.

Install transmission shift cover.



L112696-LB25020AE-010886

Group 26 HYDROSTATIC CREEPER TRANSMISSION

SPECIAL TOOL (Self-Manufactured)

Lifting Device for Removing and Installing the Creeper Transmission

1—Flat steel 130 x 12 x 415 mm
(5.11 x 0.47 x 16.34 in.)

2—Flat steel 60 x 12 x 415 mm
(2.37 x 0.47 x 16.34 in.)

3—Flat steel 60 x 12 x 170 mm
(2.37 x 0.47 x 6.69 in.)

4—Flat steel 60 x 12 x 30 mm
(2.37 x 0.47 x 1.18 in.)

5—Flat steel 25 x 8 x 205 mm
(0.98 x 0.31 x 8.07 in.)

6—Flat steel 60 x 12 x 70 mm
(2.37 x 0.47 x 2.75 in.)

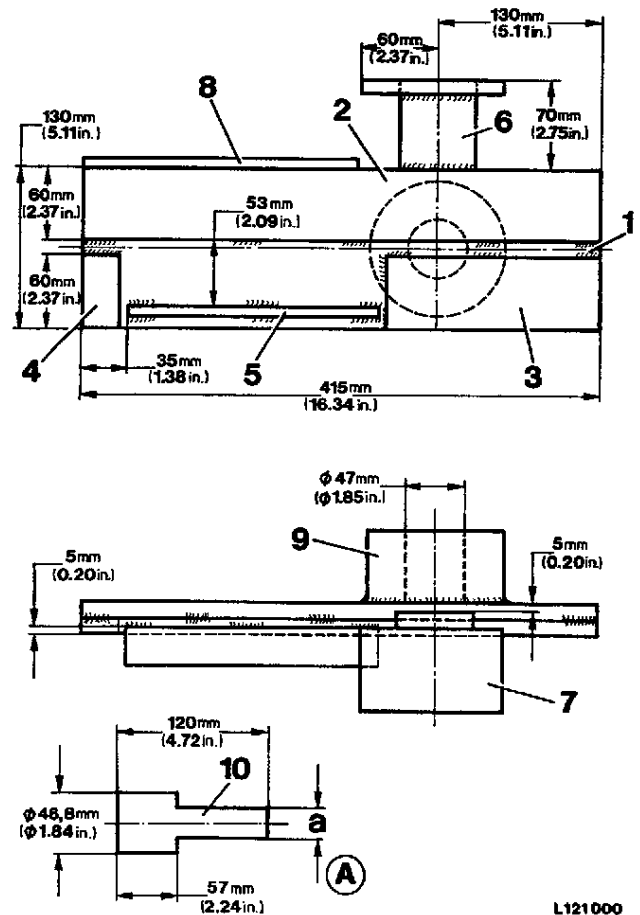
7—Flat steel 30 x 10 x 115 mm
(1.18 x 0.39 x 4.53 in.)

8—Flat steel 30 x 6 x 220 mm
(1.18 x 0.24 x 8.66 in.)

9—Round steel bar 110 x 57 mm
(4.33 x 2.24 in.)

10—Round steel bar 47 x 120 mm
(1.85 x 4.72 in.)

A—Supporting pin, diameter (a) to fit
into mounting hole of existing jack



L121000

L121000-LB35026AE-010888

SPECIFICATIONS

Adjusting drive shaft taper roller bearing:

- Preload	0.02 mm (0.0008 in.)
- Up to an end play of	0.03 mm (0.0012 in.)

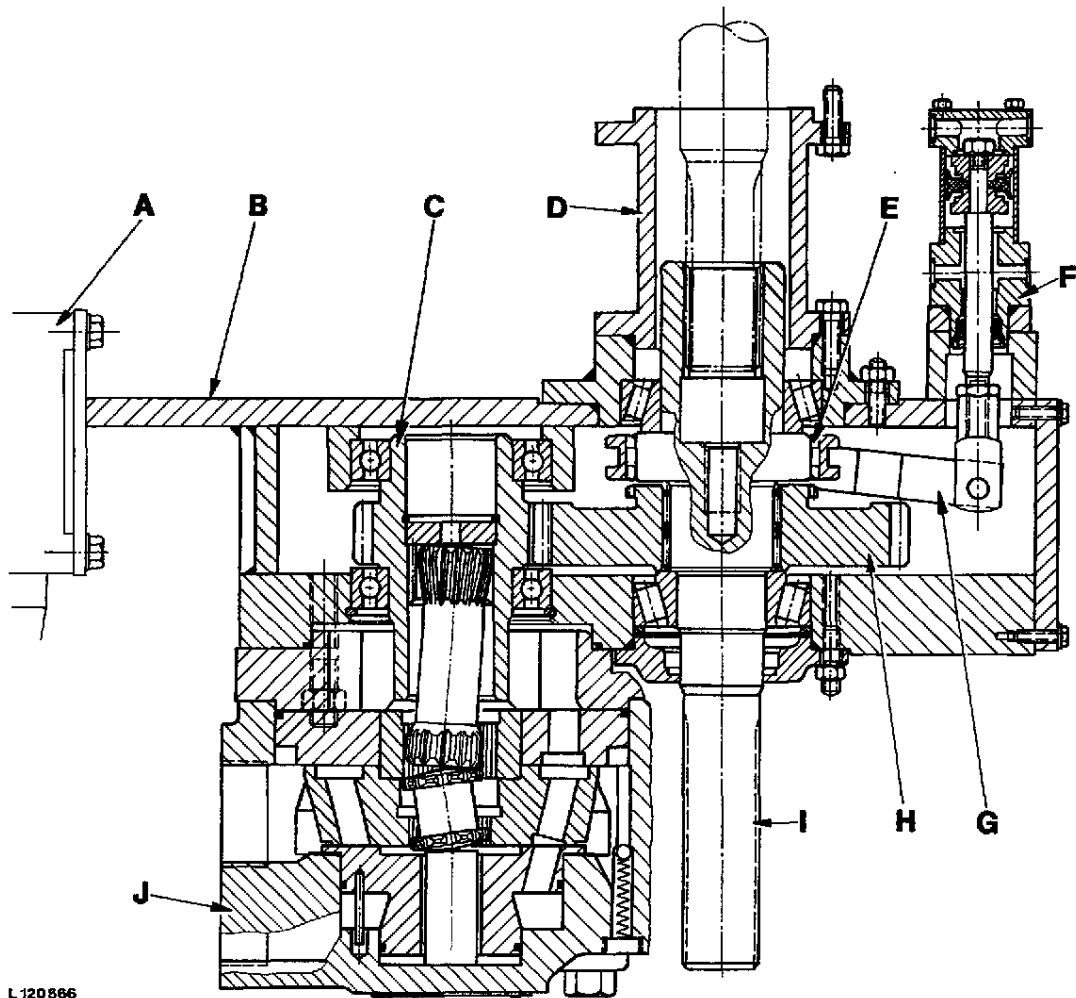
HYDROKRIECH-LB35026AE-010888

TORQUES FOR HARDWARE

Hydraulic motor to oil pan or clutch housing, retaining strap cap screws	230 Nm (170 ft-lb)
Hydraulic motor to transmission case, hex. nuts	75 Nm (55 ft-lb)
Transmission case to spacer housing, cap screws	30 Nm (20 ft-lb)
Bearing quill to transmission case, hex. nuts	30 Nm (20 ft-lb)
Shift cover to transmission case, cap screws	7 Nm (5 ft-lb)
U.j. drive shaft to drive hub of front wheel drive axle, hex. nuts	75 Nm (55 ft-lb)

HYDROKRIECH-LB35026BE-010888

HYDROSTATIC CREEPER TRANSMISSION - SECTIONAL VIEW



L 120866

A-Proportional flow control valve
B-Transmission case
C-Drive gear
D-Spacer housing

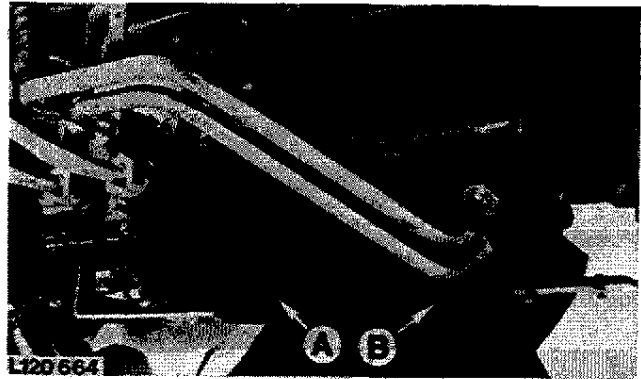
E-Shift collar
F-Shift cylinder
G-Shifter fork

H-Gear
I-Drive shaft
J-Hydraulic motor

L120666-LB35026AE-010888

DRAINING TRANSMISSION OIL

Remove drain plug (A) and special screw (B) of shifter fork guide.

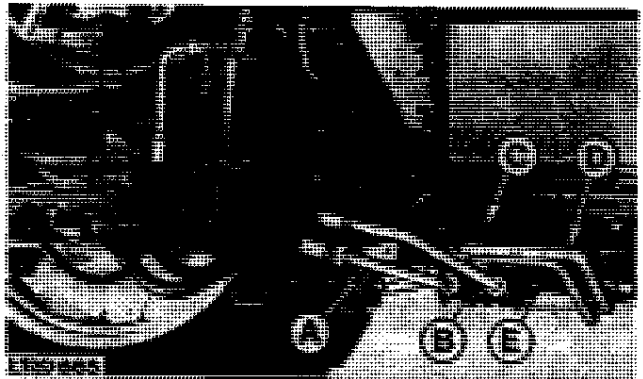


L120664-LB35026AE-010888

DISCONNECTING HYDRAULIC LINES

Disconnect pressure line (A) and return line (B) at proportional flow control valve (C).

Disconnect hydraulic lines (D and E) at hydraulic motor and at proportional flow control valve (C).

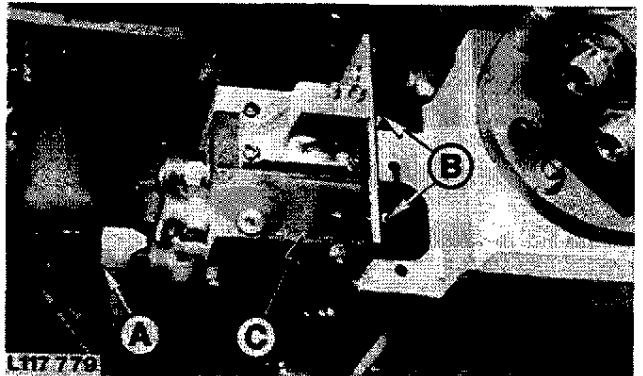


L120665-LB35026AE-010888

REMOVING PROPORTIONAL FLOW CONTROL VALVE

Remove Phillips screw of connector housing (A) and pull off connector.

Remove the four cap screws (B) of the mounting plate and remove proportional flow control valve (C).



L117779-LB35026AE-010888

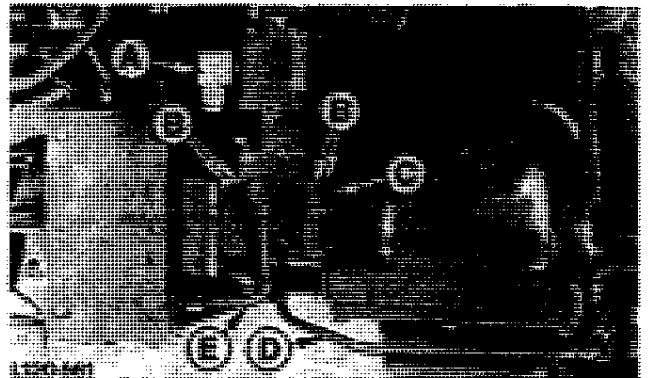
REMOVING SHIFTING VALVE

Remove Phillips screw of connector housing (A) and pull off connector.

Remove return line (E).

Disconnect pressure line (D) at connector block (C) and at solenoid housing of front-wheel drive.

Remove the four socket-head screws (B) of connector housing and remove shifting valve.

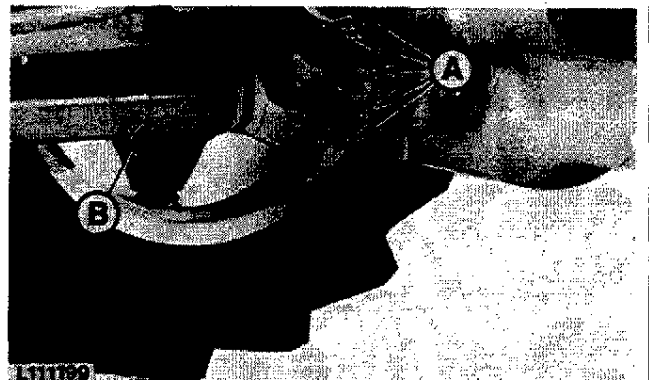


L120661-LB35026AE-010888

REMOVING U.J. DRIVE SHAFT

Remove hex. nuts (A) at flange of universal-jointed drive shaft (B).

Pull u.j. drive shaft down from through drive shaft or drive shaft of creeper transmission.



L111199-LB35026AE-010888

REMOVING HYDRAULIC MOTOR

Remove the two cap screws (B) and hex. nuts (B), then remove hydraulic motor (A) to the front.

NOTE: If the complete hydraulic creeper transmission assembly is to be removed, hydraulic motor can remain attached.



L120663-LB35026AE-010888

REMOVING CREEPER TRANSMISSION

Position self-manufactured lifting device (A) under the transmission case using a trolley jack.



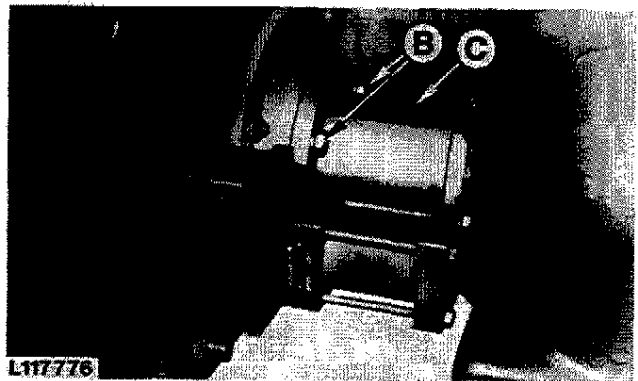
CAUTION! In order to prevent tilting, the hydraulic motor must remain attached to the transmission case.

Remove the three cap screws (B) from spacer housing (C).

Move creeper transmission away to the front.



L120 660



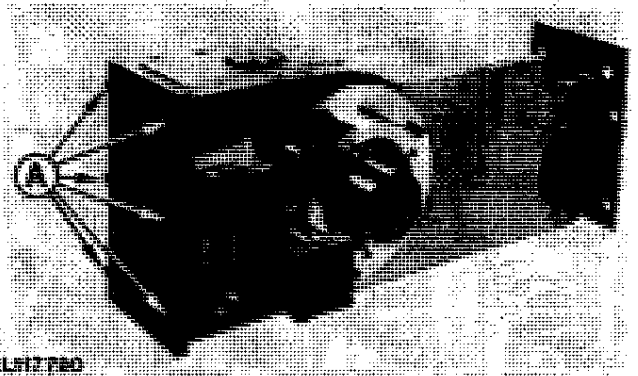
L117 776

L120660, L117776-LB35026AE-Q10888

REMOVING SHIFT COVER

Remove cap screws (A).

Tap lightly with a hammer around the edge of the shift cover to break the seal.



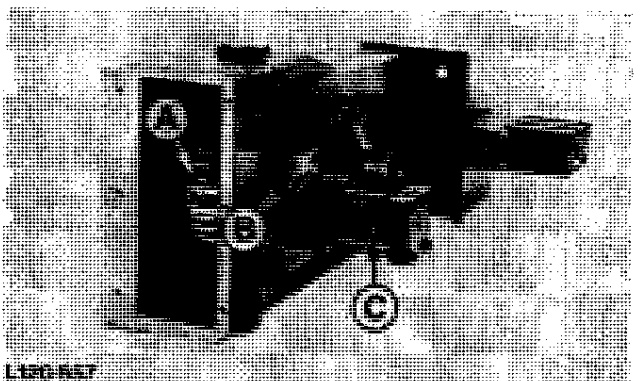
L117 780

L117780-LB35026AE-Q10888

REMOVING SHIFT CYLINDER

Remove locking plate (A) and stud.

Remove the four hex. socket head screws (B) and lift off shift cylinder (C).



L120 657

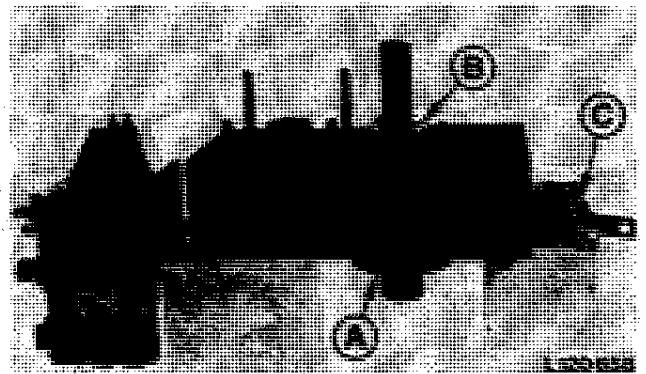
L120657-LB35026AE-Q10888

REMOVING BEARING QUILL

Place transmission case on two suitable wooden blocks.

Remove hex. nuts of both bearing quills (A and B).

Remove the special screws of shifter fork guide before lifting out shifter fork (C) with the two slide blocks.

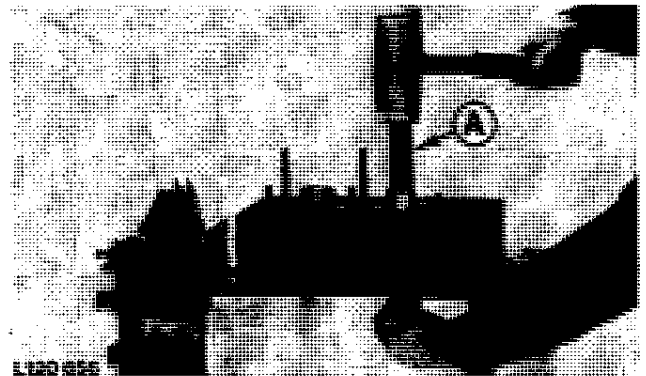


L120658-LB35026AE-010888

REMOVING DRIVE SHAFT

Drive drive shaft (A) downwards.

Remove gear with shift collar.



L120656-LB35026AE-010888

REMOVING DRIVE GEAR

Remove snap ring.

Lever drive gear (B) up and out using a commercially available crowbar.



L120659-LB35026AE-010888

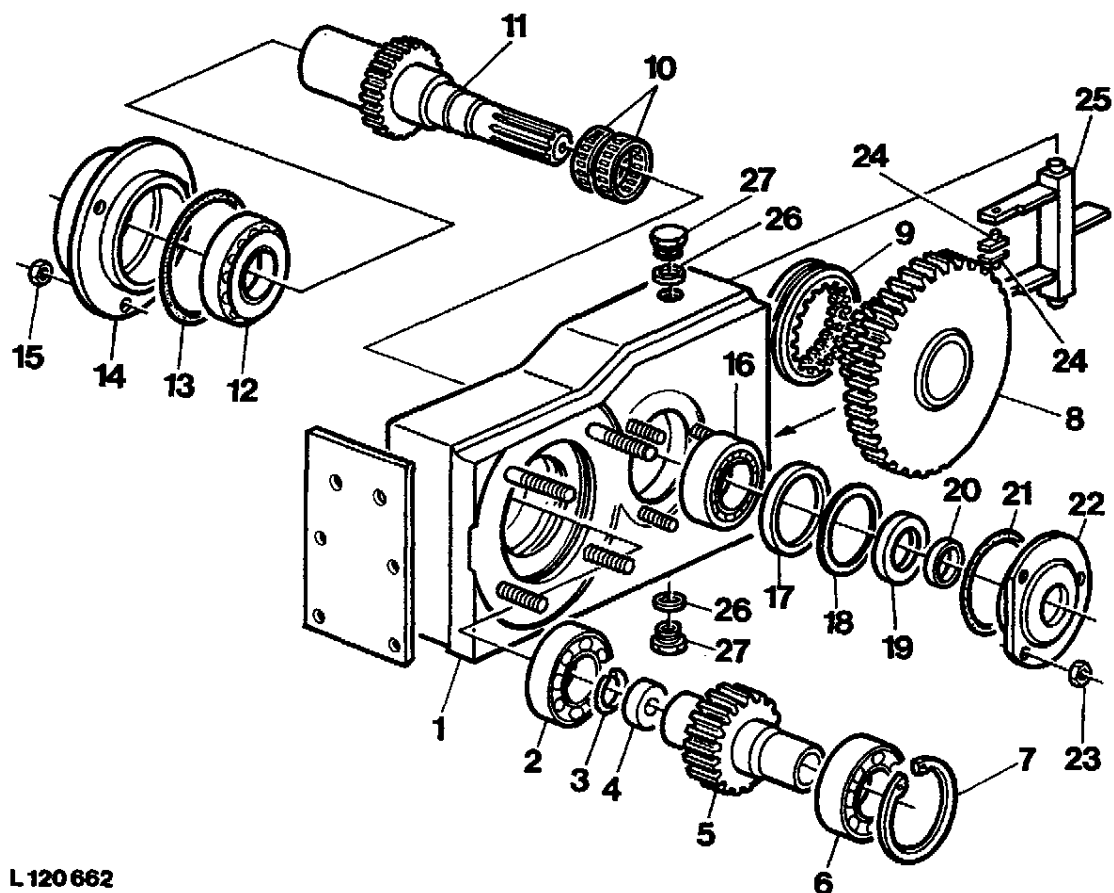
ASSEMBLING CREEPER TRANSMISSION

Assemble creeper transmission in the order indicated by the numbers in the exploded view.

Adjust creeper transmission as described on the following pages.

HYDROKRIECH-LB35026CE-010888

HYDROSTATIC CREEPER TRANSMISSION - EXPLODED VIEW



L 120 662

NOTE: Sequence of parts numbers corresponds to the sequence of installation.

1-Transmission case
2-Ball bearings
3-Snap ring
4-Thrust washer
5-Drive gear
6-Ball bearings
7-Snap ring
8-Gear
9-Shift collar

10-Needle bearings (2 used)
11-Drive shaft
12-Taper roller bearings
13-O-ring
14-Bearing quill
15-Hex. nut (3 used)
16-Taper roller bearings
17-Spacer
18-Shim (use as required)

19-Seal ring
20-Sealing washer
21-O-ring
22-Bearing quill
23-Hex. nut (3 used)
24-Sliding block
25-Shifter fork
26-Sealing washer
27-Special screw

L120662-LB35026AE-010688

ADJUSTING DRIVE SHAFT TAPER ROLLER BEARINGS

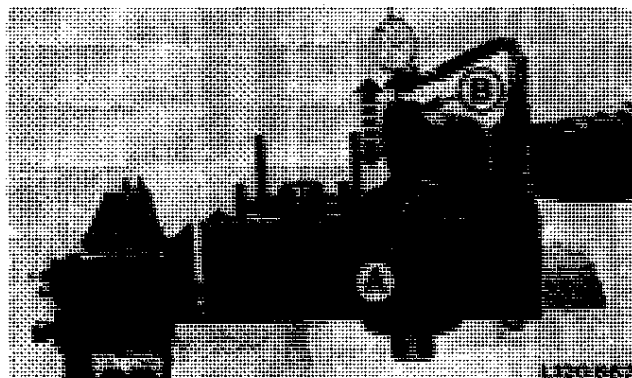
Install bearing quill (A) without shims.

Center front and rear taper roller bearing by rotating drive shaft (B).

Move drive shaft axially and measure end play.

NOTE: Mark measuring point on shaft to ensure that probe tip of gauge always contacts same point of shaft surface during measuring.

Thickness of the shims to be added must be selected so as to ensure a preload of 0.02 mm (0.0008 in.) up to an end play of 0.03 mm (0.0012 in.).



L120667-LB35026AE-010888

ADJUSTING SHIFTER FORK

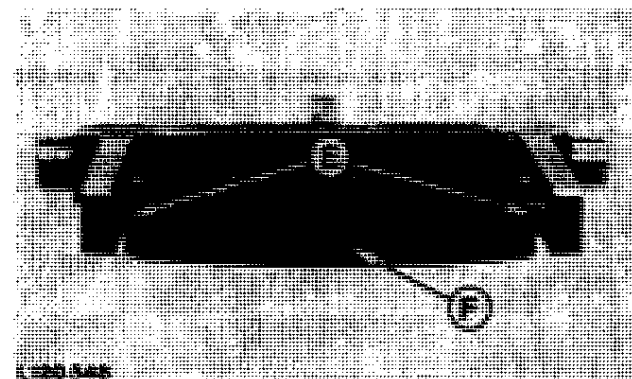
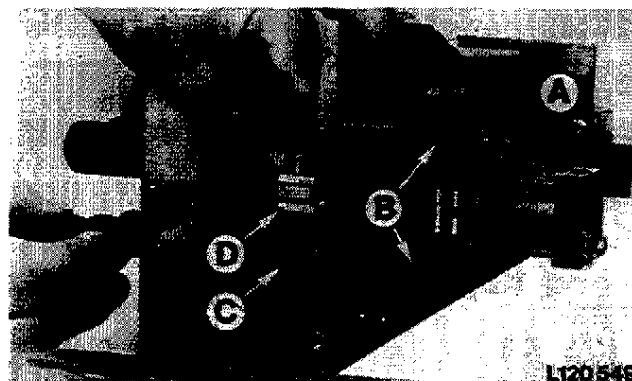
First attach shift cylinder (A) to the transmission case using two hex. socket head screws (B).

Press drive gear (C) against shift collar clearance-free using a suitable tool.

Adjust yoke (D) of the shift cylinder piston rod so that both sliding blocks (E) are exactly in center of shift collar (F).

NOTE: Sides of sliding blocks must not contact shift collar in any shift position.

Remove shift cylinder. Lock yoke with hex. nut.



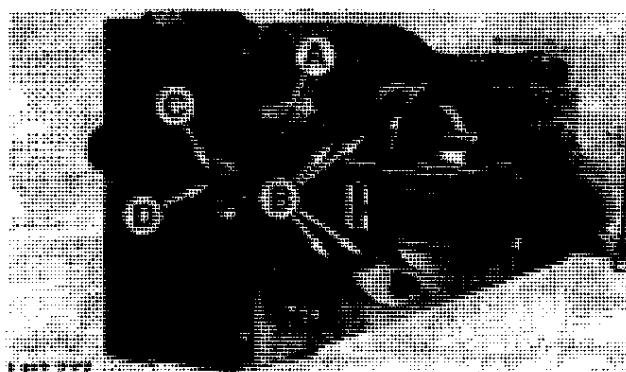
L120549, L120548-LB35026AE-010888

INSTALLING SHIFT CYLINDER

Thoroughly clean sealing surfaces (A) of transmission case and shift cylinder.

Coat sealing surfaces with Loctite 573 (L41217). Attach shift cylinder with hex. socket screws (B).

Connect yoke (C) and shift fork (D) with the pin and insert locking plates.

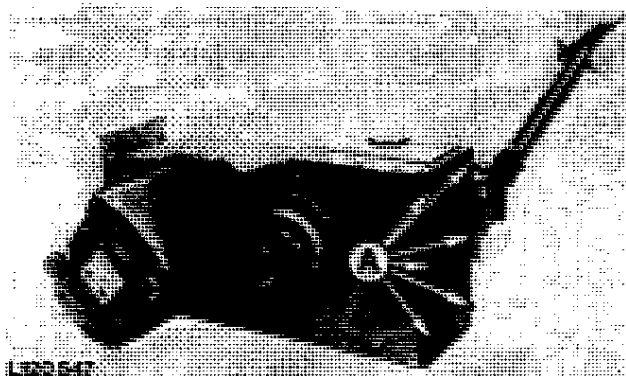


L117777-LB35026AE-010888

ATTACHING SHIFT COVER

Thoroughly clean sealing surfaces and coat with Loctite 573 (L41217).

Secure transmission shift cover with cap screws (A) and tighten screws to 7 Nm (5 ft-lb).

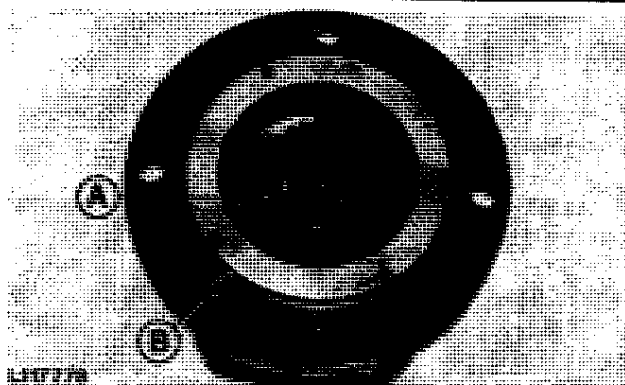


L120547-LB35026AE-010888

INSTALLING HYDRAULIC MOTOR

Coat seal ring (A) lightly with grease and install so that convex side faces away from hydraulic motor.

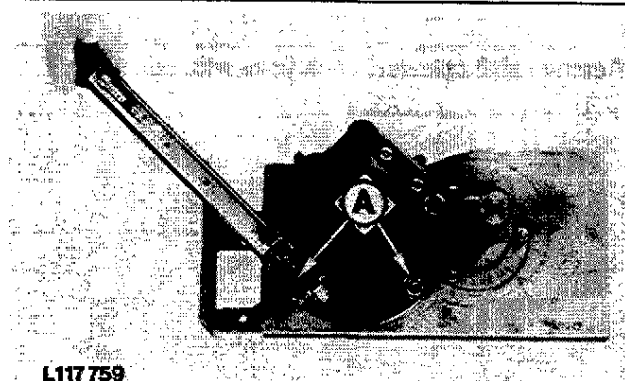
Install O-ring (B) in the groove.



L117778-LB35026AE-010888

Attach hydraulic motor to transmission case with the two lower hex. nuts (A).

Tighten hex. nuts to 75 Nm (55 ft-lb).

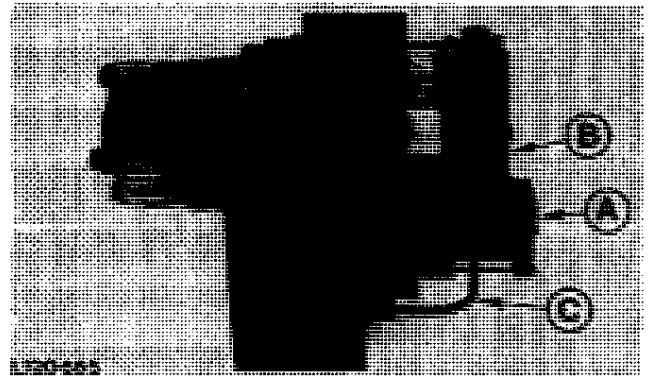


L117759-LB35026AE-010888

INSTALLING SWITCHING VALVE

Install connector block (A) and switching valve (B) with the hex. socket screws, ensuring that the O-rings are correctly positioned in the grooves.

Connect return line (C).



L120655-LB35026AE-010888

SLIDING BACK-UP RING AND PLASTIC BUSHING ONTO DRIVE SHAFT



L120546-LB35026AE-010888

INSTALLING CREEPER TRANSMISSION

Attach creeper transmission housing to spacer housing using the three cap screws.

Tighten cap screws to 30 Nm (20 ft-lb).

Tighten the two cap screws (A) to 230 Nm (170 ft-lb) and the two hex. nuts (B) to 75 Nm (55 ft-lb).

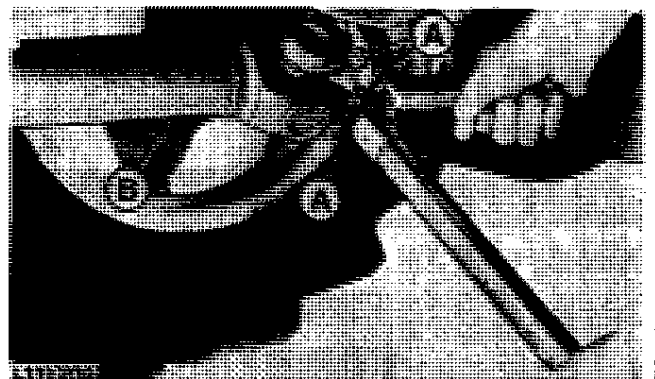


L120545-LB35026AE-010888

INSTALLING U.J. DRIVE SHAFT

Tighten hex. nuts (A) of u.j. drive shaft (B) to 75 Nm (55 ft-lb).

Reinstall u.j. drive shaft anti-wrap guards.



L111200-LB35026AE-010888

FINAL ASSEMBLY

Reconnect hydraulic lines.

Attach connector housings to proportional flow control valve and switching valve.

Top up with transmission/hydraulic oil (see Section 10).

HYDROKRIECH-LB35026DE-010888

TORQUES FOR HARDWARE

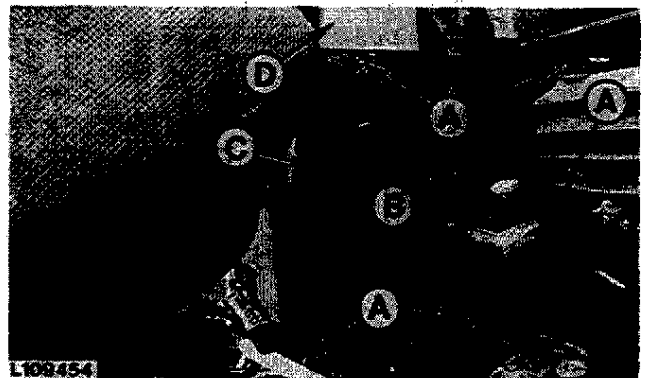
Shifter forks and arm, set screws 40 Nm (30 ft-lb)

GESCHALT-LA75020AE-301184

REMOVING SHIFT CONSOLE

Remove cap screws (A) and selector lever (B).
Remove side panel (C).

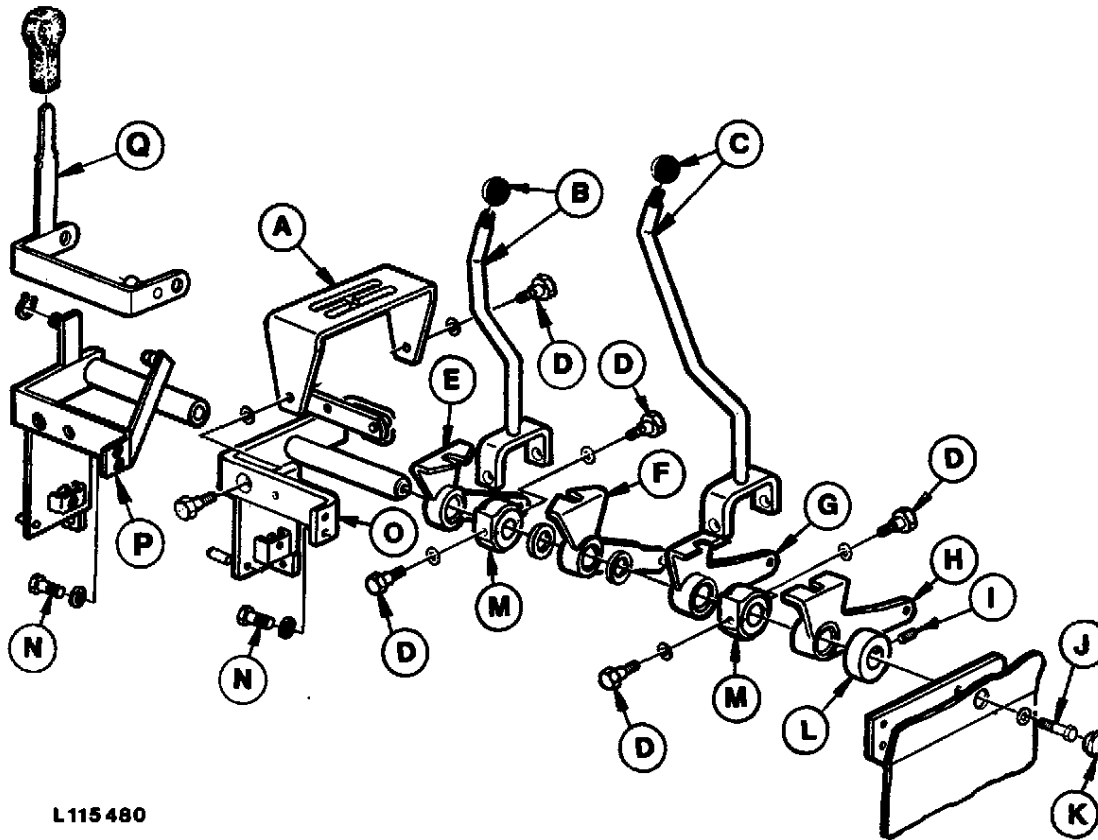
Remove shift console (D) if required. To do this remove
the three cap screws on outside of fender.



L109454

L109454-LA75020AE-301184

REMOVING SHIFT LEVER ASSEMBLY



L115480

A—Shift console*
B—Gear shift lever
C—Range shift lever
D—Special cap screws
E—Shift lever
F—Shift lever

G—Shift lever
H—Shift lever
I—Set screw
J—Cap screw
K—Cap
L—Locating ring

M—Bushings
N—Cap screw (2 used)
O—Bracket*
P—Bracket**
Q—Control lever for Hi-Lo
shift unit**

* Up to Tractor Serial No. 603 132L

** From Tractor Serial No. 603 133L

Remove cap (K) on outer side of cab and unscrew cap screw (J). Disconnect connecting rods.

After removing cap screws (N), lift off complete shift lever assembly.

L115480-LB35030AE-010888

PREPARATORY WORK

Separate tractor between clutch housing and transmission case, see Section 10, Group 25.

Remove rockshaft, see Section 10, Group 25.

GESCHALT-LA75020BE-301184

REMOVING SHIFTER SHAFTS

Shifter shafts (C and D) can be pulled out after loosening set screws (A and B).

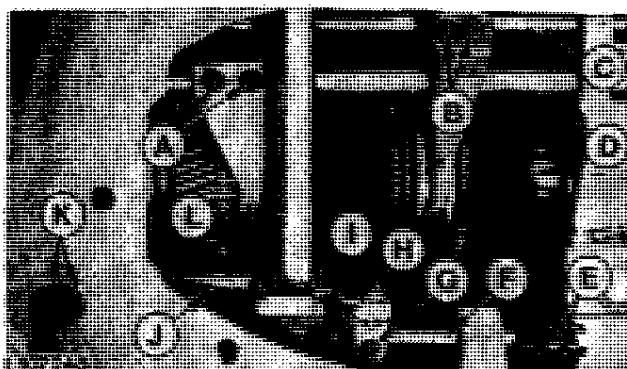
A-Set screws	G-Set screws
B-Set screws	H-Set screws
C-Shifter shaft	I-Set screws
D-Shifter shaft	J-Shifter shaft
E-Set screws	K-Set screws
F-Shifter shaft	L-Shifter shaft

Loosen set screws (E, G and K) and pull out shifter shafts (F and J).

Loosen set screws (H and I), pull inner and outer shifter shafts (L) from transmission case and remove the lever now free.

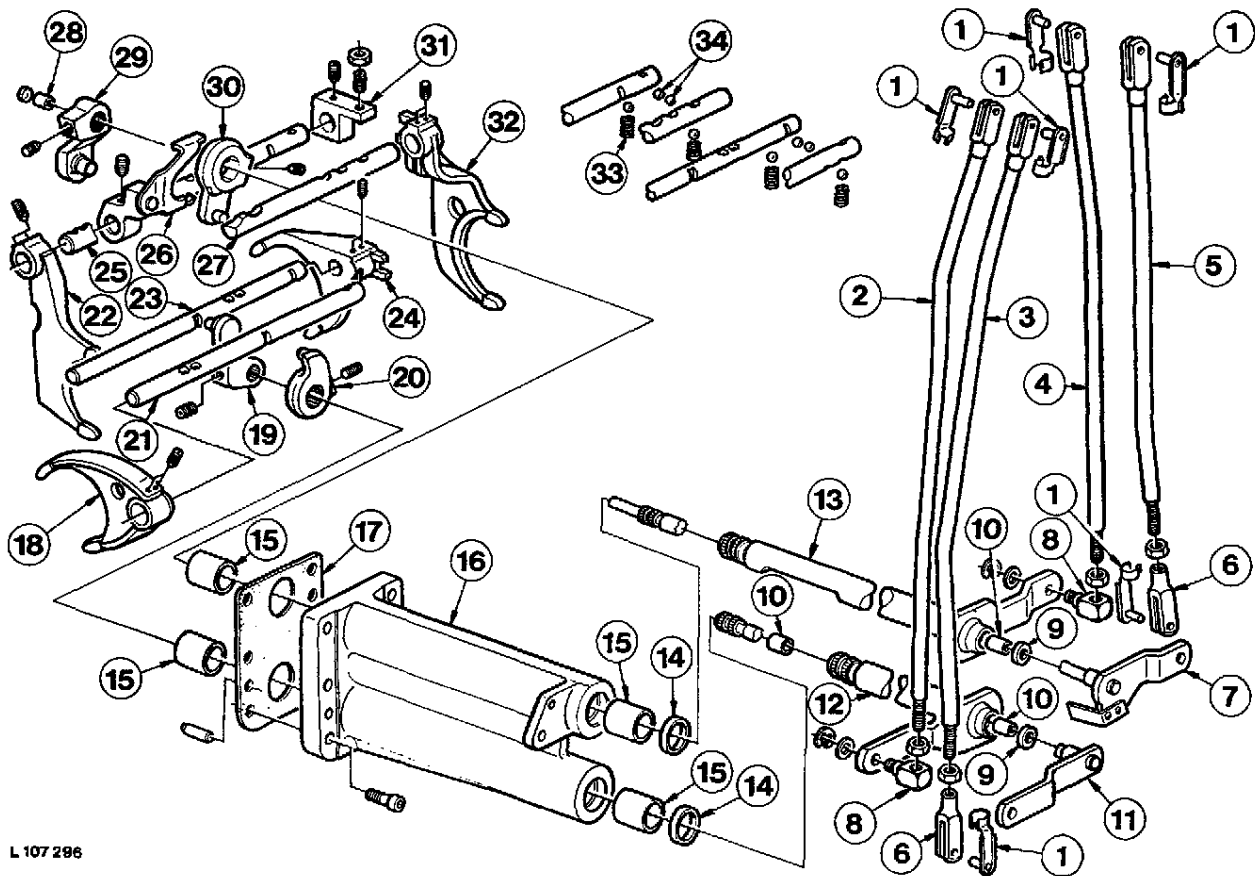
Remove shifter shafts below in the same way.

NOTE: When removing shifter shafts (C, D, F and J), push down uncovered detent balls with a 5 mm (3/16 in.) dia. pin (refer to "Installing Detent Balls").



L107248-LA75020AE-001184

TRANSMISSION SHIFT LINKAGE, EXPLODED VIEW

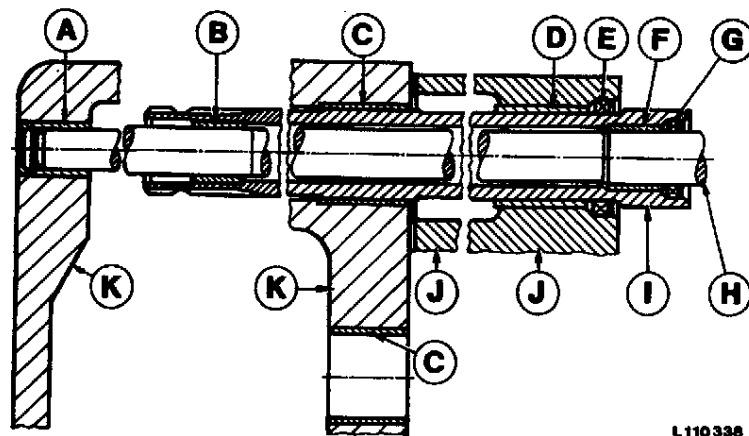


L 107 296

- | | | |
|---|---|---|
| 1-Clip | 13-Shifter shaft, range I and reverse range | 25-Shifter shaft, range II |
| 2-Connecting rod, 1st and 2nd gear | 14-Oil seal | 26-Shifter arm of start safety switch |
| 3-Connecting rod, 3rd and 4th gear | 15-Bushings | 27-Shifter shaft, range I and reverse range |
| 4-Connecting rod, range I and reverse range | 16-Shifter shaft housing | 28-Bushing |
| 5-Connecting rod, range II | 17-Gasket | 29-Shift lever |
| 6-Yoke | 18-Shifter fork, 1st and 2nd gear | 30-Shift lever |
| 7-Shifter shaft, range II | 19-Shift lever | 31-Guide block |
| 8-Pivoting joint | 20-Shift lever | 32-Shifter fork, range I and reverse range |
| 9-Oil seal | 21-Shifter shaft, 1st and 2nd gear | 33-Springs |
| 10-Bushings | 22-Shifter fork, range II | 34-Balls |
| 11-Shifter shaft, 3rd and 4th gear | 23-Shifter shaft, 3rd and 4th gear | |
| 12-Shifter shaft, 1st and 2nd gear | 24-Shifter fork, 3rd and 4th gear | |

L107296-LA75020AE-010485

INSTALLING BUSHINGS AND OIL SEALS



L110338

A-Bushing
B-Bushing
C-Bushing

D-Bushing
E-Oil seals
F-Bushing

G-Oil seal
H-Shifter shaft

I-Shifter shaft
J-Shifter shaft housing
K-Transmission case

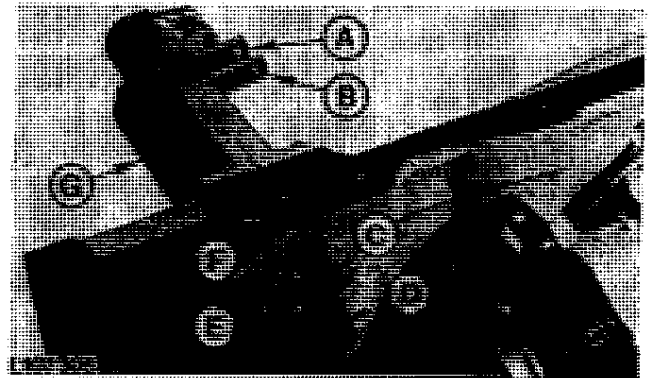
Install bushings as shown.
Lips of oil seals (E and G) must face inwards.

L110338-LB25025AE-010886

INSTALLING BOTTOM SHIFTER SHAFTS

Aligning splines, slide shift lever (E) onto shaft.
Position levers of shifter shafts (A and B) parallel and
install lever (C) so that cams (D and F) are aligned.
Insert set screws coated with Loctite 242 (L 41475) so
that they fit in shaft recess.

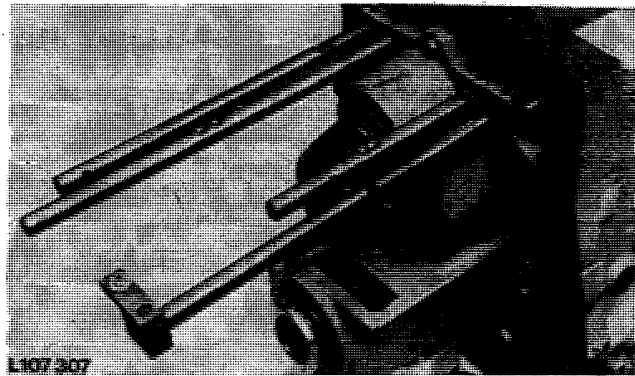
A-Shifter shaft, 3rd and 4th gear
B-Shifter shaft, 1st and 2nd gear
C-Shift lever
D-Cam
E-Shift lever
F-Cam
G-Shifter shaft housing



L107305-LB35030AE-010287

INSTALLING SHIFTER SHAFTS

Install shifter shafts as illustrated and as described below.



L107307-LA75020AE-301184

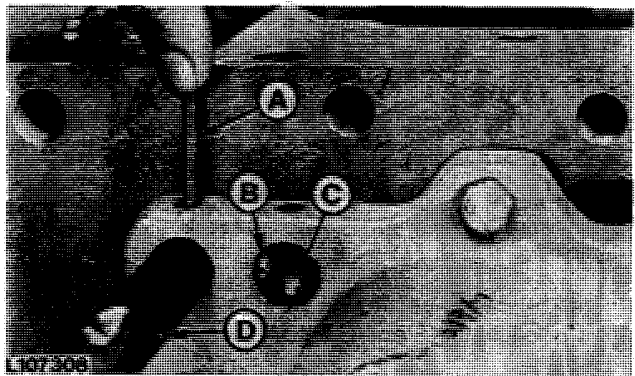
INSTALLING DETENT BALLS

Push down detent ball (C) with spring underneath using a 5 mm (3/16 in.) diameter pin (A) and install shifter shaft (D).

Slide in shifter shaft until both detent balls (B) are pressed into vertical grooves of shifter shaft. Install second shifter shaft.

A—Pin
B—Detent ball

C—Detent ball
D—Shifter shaft



L107308-LA75020AE-001184

ADJUSTING SHIFTER FORK FOR 3RD AND 4TH GEAR

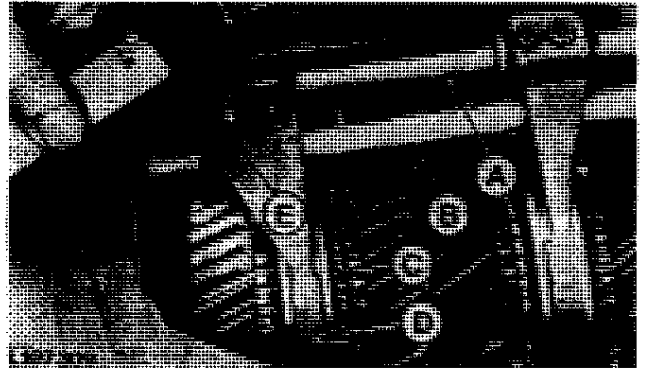
Move shifter shaft (B) to neutral position.

Adjust shifter fork (D) until it is exactly in center of shifter collar.

Alternately tighten self-locking set screws (E) to 40 Nm (30 ft-lb).

NOTE: Shifter fork (D) must not rub against side of shifter collar in any shift position.

A–Shifter shaft (1st and 2nd gear)
B–Shifter shaft (3rd and 4th gear)
C–Shifter collar
D–Shifter fork (3rd and 4th gear)
E–Set screws



L107308-LA75020AE-010485

ADJUSTING SHIFTER FORK FOR 1ST AND 2ND GEAR

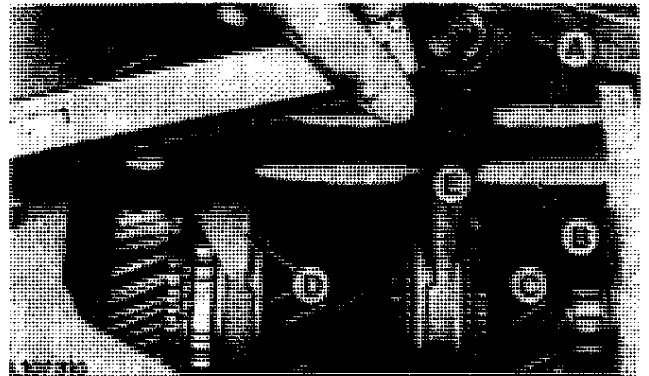
Move shifter shaft (A) to neutral position.

Adjust shifter fork (C) until it is exactly in center of shifter collar.

Alternately tighten self-locking set screws (E) to 40 Nm (30 ft-lb).

NOTE: Shifter fork (C) must not rub against side of shifter collar in any shift position.

A–Shifter shaft (1st and 2nd gear)
B–Shifter shaft (3rd and 4th gear)
C–Shifter fork (1st and 2nd gear)
D–Shifter fork (3rd and 4th gear)
E–Set screws



L107310-LA75020AE-010485

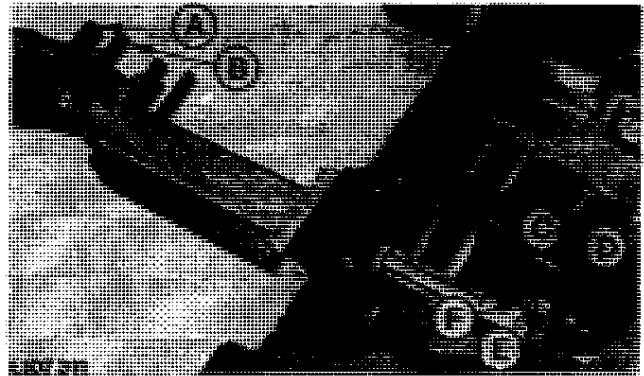
INSTALLING TOP SHIFTER SHAFTS

Aligning splines, slide shift lever (C) onto shaft.

Position levers of shifter shafts (A and B) parallel and install lever (D) so that cams (E and F) are aligned.

Insert set screws coated with LOCTITE 242 (L 41475) so that they fit in shaft recess.

- A–Shifter shaft, range II
- B–Shifter shaft, range I and reverse range
- C–Shift lever
- D–Shift lever
- E–Cam
- F–Cam



L107311-LB35030AE-010287

ADJUSTING SHIFTER FORKS FOR RANGES II, I AND REVERSE

Move shifter shaft (D) to neutral position.

Slide shifter fork (B) with shifter collar forward until it lightly contacts hollow gear shaft.

- | | |
|---------------------------|--|
| A–Shifter shaft | G–Set screw |
| B–Shifter fork (range II) | H–Set screw |
| C–Set screws | I–Hex. nut |
| D–Shifter shaft | J–Shifter fork (range I and reverse range) |
| E–Set screw | K–Shifter* |
| F–Set screws | L–Set screw* |

* From Tractor Serial No. 669 699L

Alternately tighten self-locking set screws (C) to 40 Nm (30 ft-lb).

Move shifter shaft (A) to neutral position.

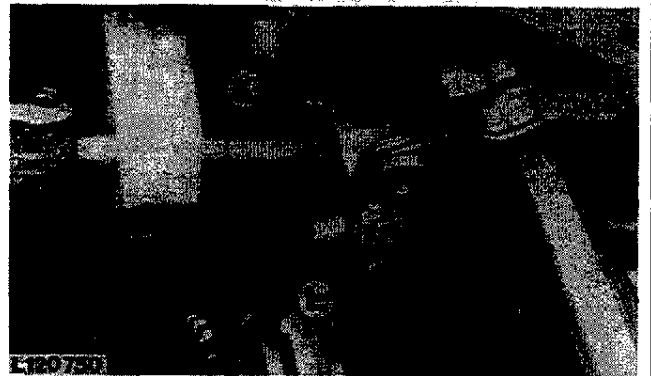
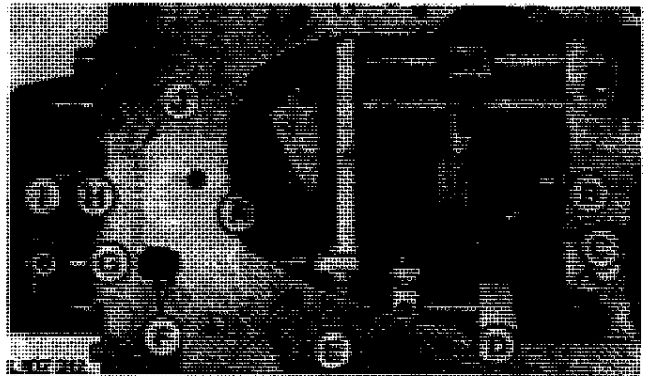
Adjust shifter fork (J) so that shifter collar is positioned in center of shifter sleeve.

Alternately tighten self-locking set screws (F) to 40 Nm (30 ft-lb).

NOTE: The shifter forks must not rub against side of shifter collar in any shift position.

Tighten set screws (E and G). By means of set screw (H), adjust shifter fork (B) so that it does not press at top or bottom onto shifter collar. Lock with hex. nut (I).

NOTE: From Tractor Serial No. 669 699L, adjust shifter fork (B) with set screw (L).

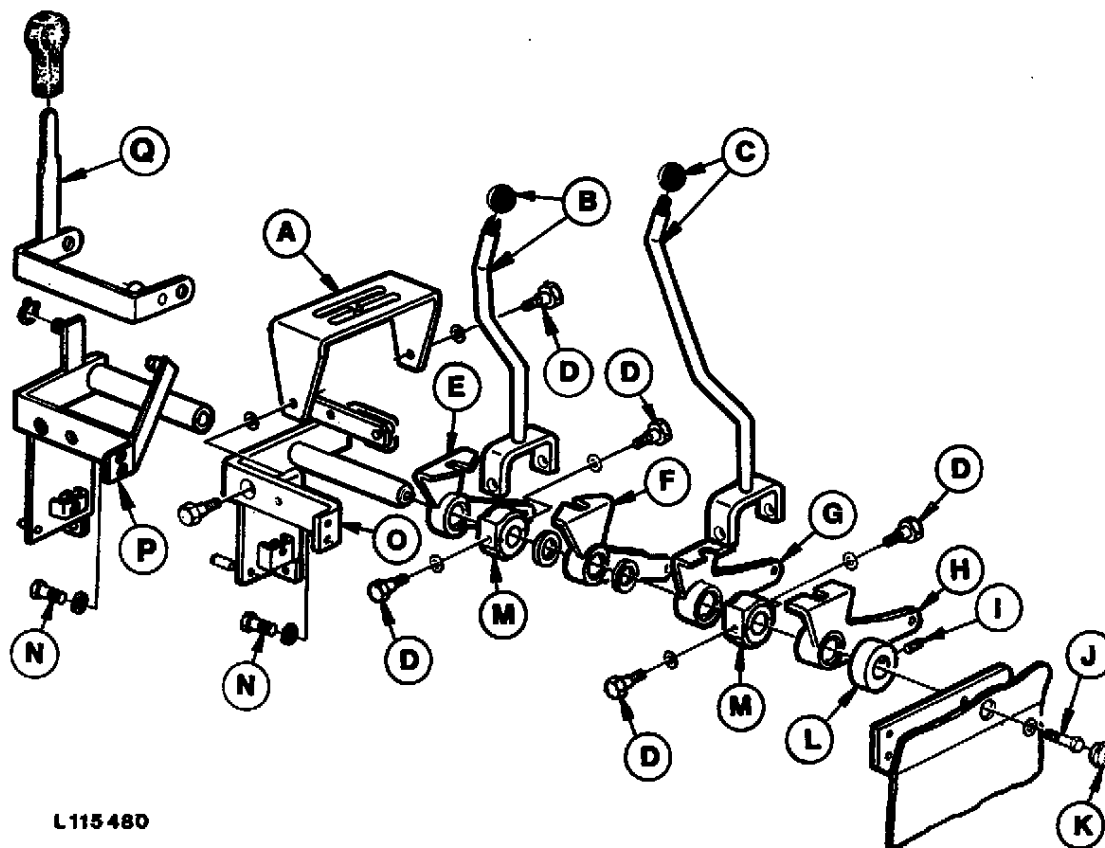


FINAL ASSEMBLY

Install rockshaft (see Section 10, Group 25).
Join tractor between clutch housing and transmission
case (see Section 10, Group 25).

GESCHALT-LA75020CE-301184

ASSEMBLING SHIFT LEVER ASSEMBLY



L115480

A—Shift console*
B—Gear shift lever
C—Range shift lever
D—Special cap screws
E—Shift lever
F—Shift lever

G—Shift lever
H—Shift lever
I—Set screw
J—Cap screw
K—Cap
L—Locating ring

M—Bushings
N—Cap screw
O—Bracket*
P—Bracket**
Q—Control lever for HI-Lo shift unit**

* Up to Tractor Serial No. 603 132L

** From Tractor Serial No. 603 133L

Apply Molykote grease to all sliding surfaces before assembly.

Secure shift lever assembly with cap screw (J).

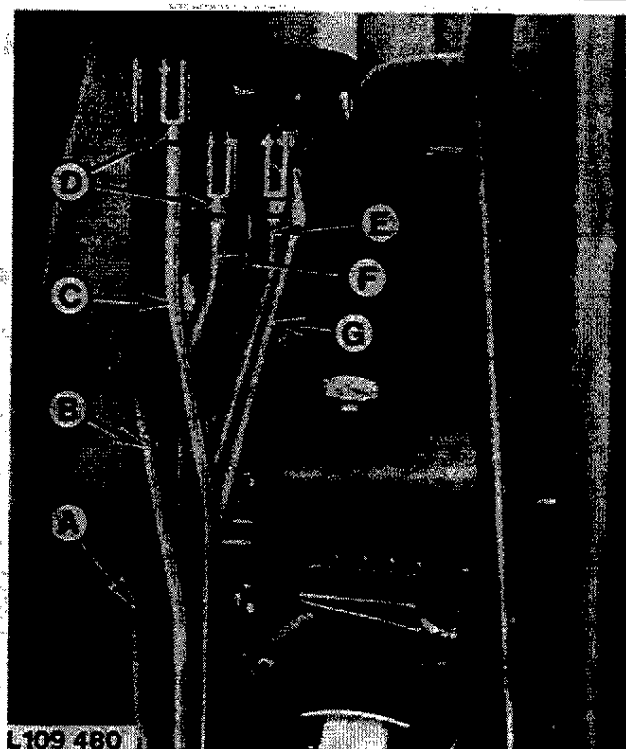
NOTE: Coat threaded ends of shift levers (B and C) with Loctite 270 (L41476) before securing shift lever knobs. + M

L115480-LB35030BE-010888

INSTALLING CONNECTING RODS

Hook in removed connecting rods at top and secure with clip (D).

- A—Connecting rod, Hi-Lo shift unit
- B—Connecting rod, 3rd and 4th gear
- C—Connecting rod, 1st and 2nd gear
- D—Clip
- E—Connecting rod, range I and reverse range
- F—Connecting rod, range II
- G—Connecting rod, speed control



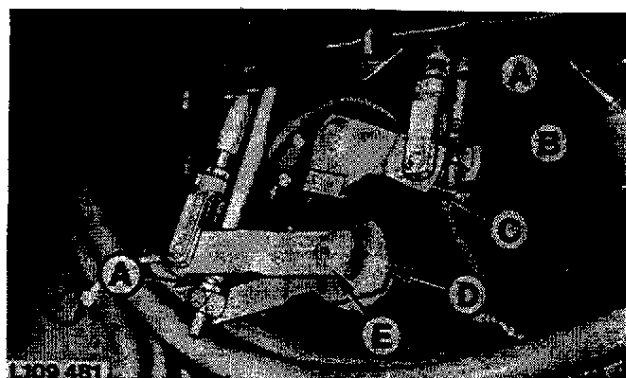
L109 480

L109480-LA75020AE-301184

ADJUSTING CONNECTING RODS

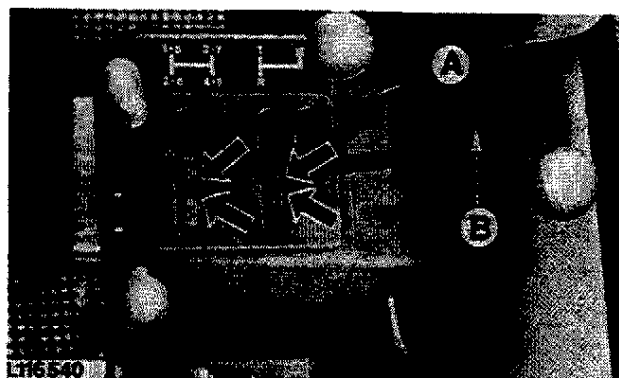
With shifter shaft levers (B, C, D or E) and shift lever in neutral, install corresponding connecting rods tension-free and secure with hex. nuts (A).

- A—Hex. nut
- B—Shifter shaft lever, range I and reverse range
- C—Shifter shaft lever, range II
- D—Shifter shaft lever, 1st and 2nd gear
- E—Shifter shaft lever, 3rd and 4th gear



L109 481

NOTE: In neutral position, shift levers (A and B) must not contact sides of slot in shift console (see arrows).



L116 540

L109481, L116540-LB35030AE-010287

Group 35 TRANSMISSION – CENTER SHIFT

TORQUES FOR HARDWARE

Shifter forks and arm, set screws 40 Nm (30 ft-lb)

GESCHALT-LA75020AE-301184

PREPARATORY WORK

Separate tractor between clutch housing and transmission case, see Section 10, Group 25.

Remove rockshaft, see Section 10, Group 25.

GESCHALT-LA75020BE-301184

REMOVING SHIFTER SHAFTS (With Synchronized Transmission)

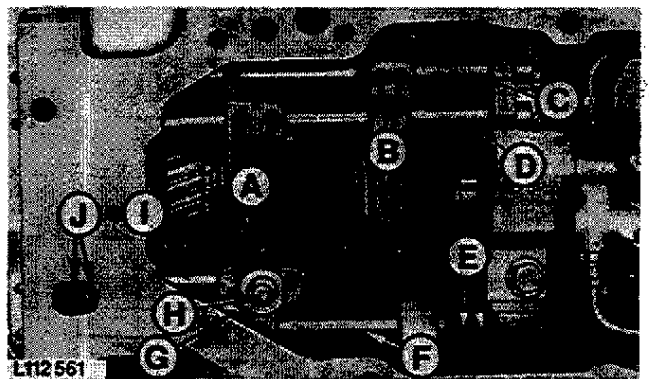
Remove contact pin (H). Loosen set screws (A and B) and pull out shifter shafts (C and D). Loosen set screws (E, G and J) and pull out shifter shafts (F and I).

NOTE: All shifter shafts must be in neutral position before removal.

A–Set screws
B–Set screws
C–Shifter shaft
D–Shifter shaft
E–Set screws

F–Shifter shaft
G–Set screw
H–Contact pin (start
safety switch)
I–Shifter shaft
J–Set screws

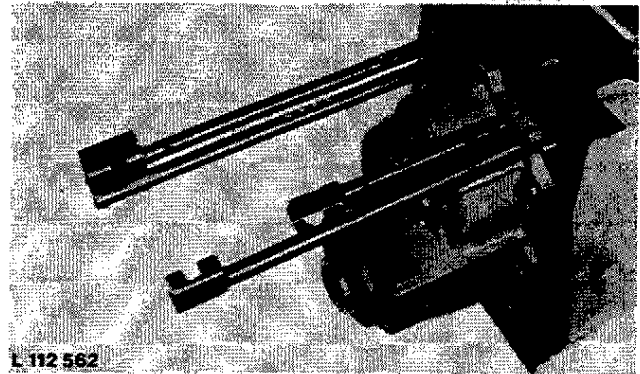
NOTE: When removing shifter shafts (C, D, F and I), push down uncovered detent balls with a 5 mm (3/16 in.) diameter pin (refer to "Installing Detent Balls").



L112561-LB35035AE-010287

INSTALLING SHIFTER SHAFTS

Install shifter shafts as illustrated and described below.



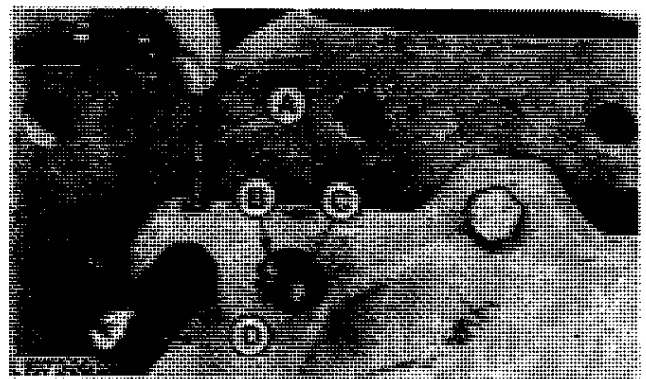
L112562-LB25030AE-000886

INSTALLING DETENT BALLS

Push down detent ball (C) with spring underneath, using a 5 mm (3/16 in.) diameter pin (A) and install shifter shaft (D). Slide in shifter shaft until both detent balls (B) engage into vertical grooves of shifter shaft. Install the second shifter shaft.

A—Pin
B—Detent ball

C—Detent ball
D—Shifter shaft



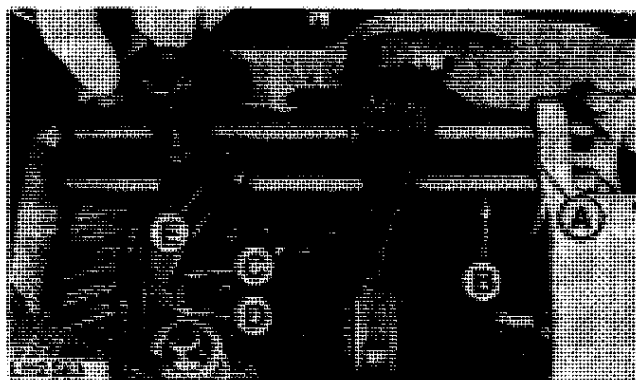
L107308-LA75020AE-001184

ADJUSTING SHIFTER FORK FOR 3RD AND 4TH GEAR

Move shifter shaft (B) to neutral position.

Adjust shifter fork (D) until exactly in center of shifter collar.

- A—Shifter shaft (1st and 2nd gear)
- B—Shifter shaft (3rd and 4th gear)
- C—Shifter collar
- D—Shifter fork (3rd and 4th gear)
- E—Set screws



Alternately tighten self-locking set screws (E) to 40 Nm (30 ft-lb).

NOTE: Shifter fork (D) must not rub against side of shifter collar in any shift position.

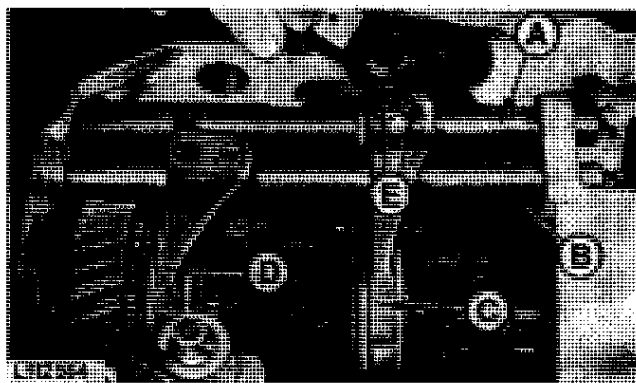
L112563-LB25030AE-000896

ADJUSTING SHIFTER FORK FOR 1ST AND 2ND GEAR

Move shifter shaft (A) to neutral position.

Adjust shifter fork (C) until exactly in center of shifter collar.

- A—Shifter shaft (1st and 2nd gear)
- B—Shifter shaft (3rd and 4th gear)
- C—Shifter fork (1st and 2nd gear)
- D—Shifter fork (3rd and 4th gear)
- E—Set screws



Alternately tighten self-locking set screws (E) to 40 Nm (30 ft-lb).

NOTE: Shifter fork (C) must not rub against side of shifter collar in any shift position.

L112564-LB25030AE-000896

ADJUSTING SHIFTER FORK FOR RANGES II, I AND REVERSE

Move shifter shaft (D) to neutral position.

Slide shifter fork (B) with shifter collar forward until it lightly contacts hollow gear shaft.

Alternately tighten self-locking set screws (C) to 40 Nm (30 ft-lb).

Move shifter shaft (A) to neutral position.

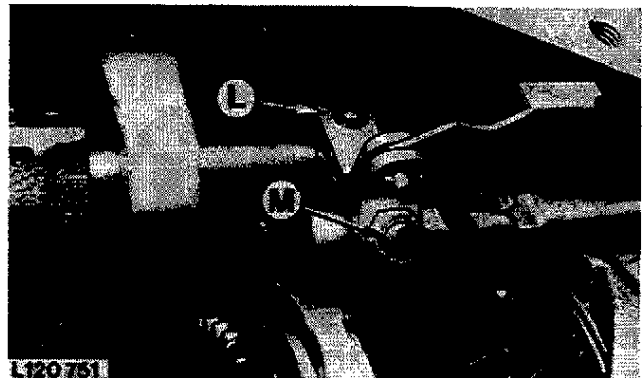
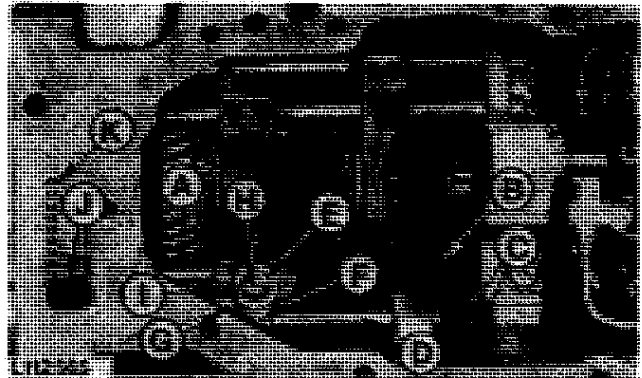
Adjust shifter fork (K) so that shifter collar is positioned in center of shifter sleeve.

Alternately tighten self-locking set screws (J) to 40 Nm (30 ft-lb).

NOTE: Shifter forks must not rub against side of the shifter collar in any shift position.

Tighten set screws (G). By means of self-locking set screw (E), adjust shifter fork (B) so that it does not press at top or bottom onto shifter collar. Install contact pin (H).

NOTE: From Tractor Serial No. 669 699L, adjust shifter fork (B) with set screw (M).



A-Shifter shaft	H-Contact pin for start safety switch
B-Shifter fork (range II)	I-Guide
C-Set screws	J-Set screws
D-Shifter shaft	K-Shifter fork (range I and reverse range)
E-Self-locking set screw	L-Shifter*
F-Shifter	M-Set screw*
G-Set screw	

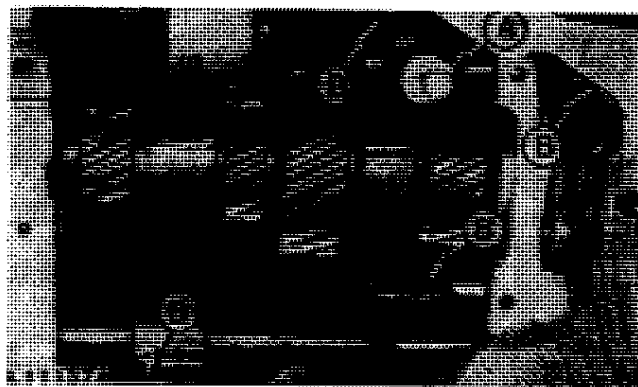
* From Tractor Serial No. 669 699L

REMOVING SHIFTER SHAFTS (With Collar Shift Transmission)

Remove contact pin (A) of start safety switch. Loosen set screws (B) and pull out shifter shafts one after another.

NOTE: When removing, do not turn shifter shafts as spring-loaded detent balls can lock shifter shafts.

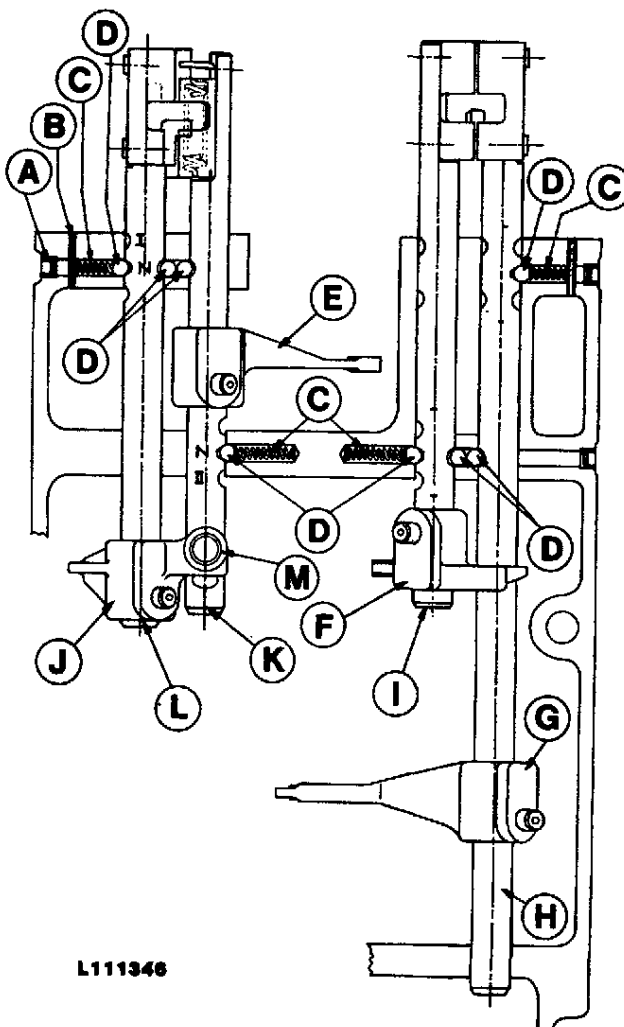
NOTE: When pulling out individual shifter shafts, make sure that detent balls and springs do not drop into the transmission.



L111374-LB35035AE-Q10287

SHIFTING MECHANISM (With Collar Shift Transmission)

- A—End caps
- B—Spring pin
- C—Detent spring
- D—Detent balls
- E—Shifter fork, range II
- F—Shifter fork, 3rd and 7th,
4th and 8th gear
- G—Shifter fork, 1st and 5th,
2nd and 6th gear
- H—Shifter shaft, 1st and 5th,
2nd and 6th gear
- I—Shifter shaft, 3rd and 7th,
4th and 8th
- J—Shifter fork, range I and
reverse
- K—Shifter shaft, range II
- L—Shifter shaft, range I and
reverse
- M—Pin of start safety switch



L111346

L111346-LB35035AE-010287

INSTALLING SHIFTER SHAFTS

Install shifter shafts as illustrated and described below.



L111380-LB35035AE-010287

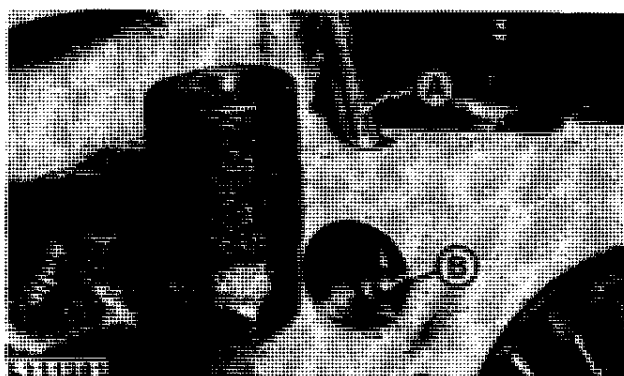
INSTALLING DETENT BALLS

Push down detent ball (B) with spring underneath, using a 5 mm (3/16 in.) diameter pin (A) and install shifter shaft.

Slide in shifter shaft until both detent balls (B) engage into vertical grooves of shifter shaft.

Install the second shifter shaft.

NOTE: See under "Shifting Mechanism (With Collar Shift Transmission)" for location of detent balls and springs.



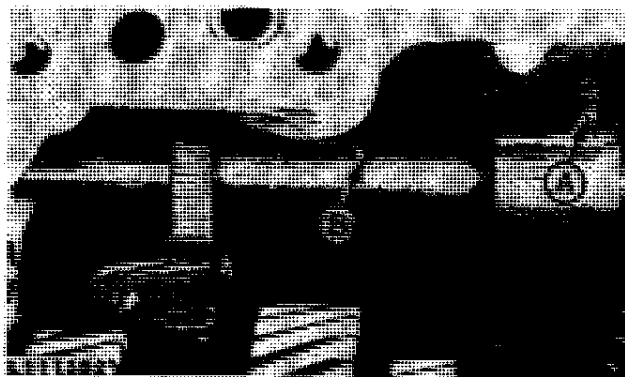
L111381-LB35035AE-010287

INSTALLING SHIFTER SHAFTS FOR 1ST AND 2ND GEAR

Slide in shifter shaft until set screw (A) fits in bore (B).

Tighten set screw.

NOTE: When installing, do not turn shifter shafts as spring-loaded detent balls can lock shifter shafts.



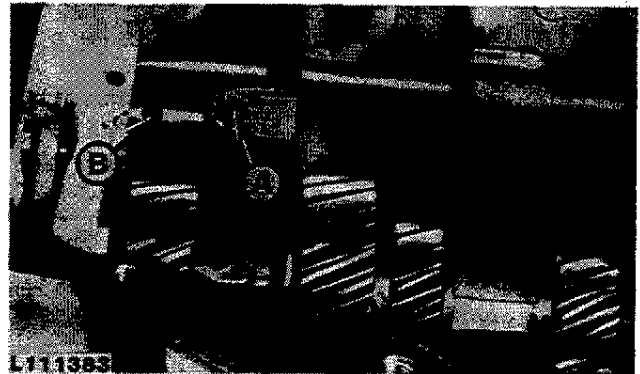
L111382-LB35035AE-010287

INSTALLING SHIFTER SHAFT FOR 3RD AND 4TH GEAR

Slide in shifter shaft until set screw (A) fits in bore (B).

Tighten set screw.

IMPORTANT: When installing, do not turn shifter shaft as spring-loaded detent ball can lock shifter shaft.



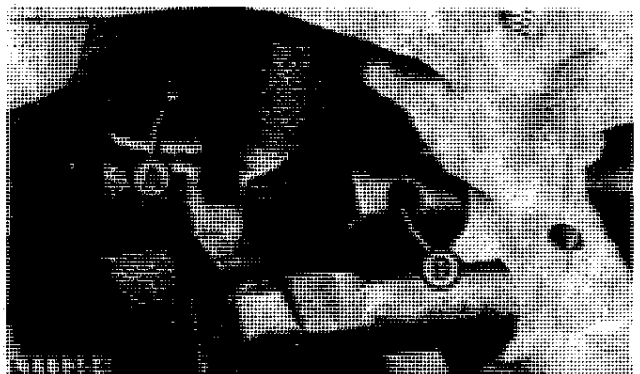
L111383-LB35035AE-010287

INSTALLING SHIFTER SHAFT FOR RANGE I

Slide in shifter shaft until set screw (A) fits in bore (B).

Tighten set screw.

IMPORTANT: When installing, do not turn shifter shaft as spring-loaded detent ball can lock shifter shaft.



L111384-LB35035AE-010287

INSTALLING SHIFTER SHAFT FOR RANGE II

Slide in shifter shaft and tighten set screw in bore of shifter shaft.

Install pin (A) of start safety switch.

NOTE: To replace shifter fork for range II, the transmission shift cover must be removed.



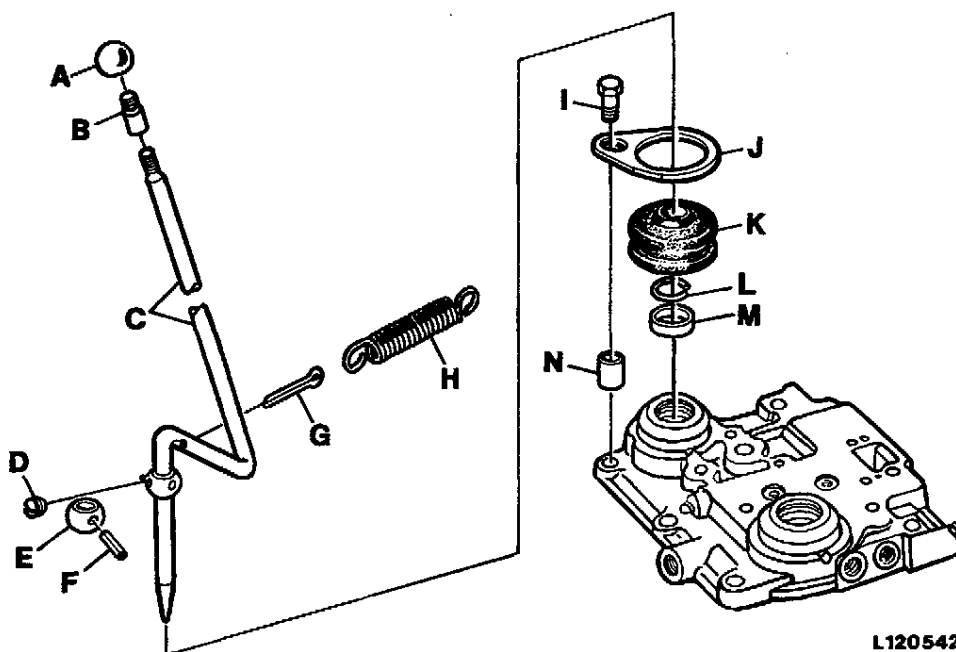
L111385-LB35035AE-010287

FINAL ASSEMBLY

Install rockshaft (see Section 10, Group 25).
Join tractor between clutch housing and transmission case (see Section 10, Group 25).

GESCHALT-LA75020CE-301184

ASSEMBLING SHIFT LEVER ASSEMBLY



L120542

A-Shift lever knob
B-Shift lever extension*
C-Shift lever
D-Set screw
E-Ball

F-Spring pin
G-Cotter pin*
H-Spring*
I-Cap screw
J-Bracket

K-Rubber boot
L-Snap ring
M-Bushing
N-Spacer bushing

* When equipped

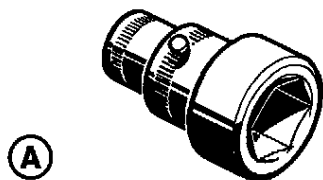
NOTE: Coat threaded end of shift lever or shift lever extension with Loctite 270 (L41476) before securing shift lever knob.

L120542-LB35035AE-010888

Group 40 **SYNCHRONIZED TRANSMISSION AND TRANSMISSION OIL PUMP**

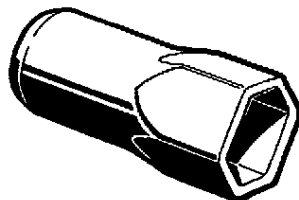
SPECIAL TOOLS

KML10006



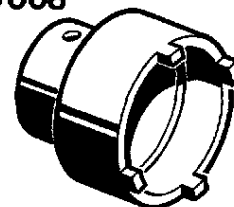
(A)

KML10007



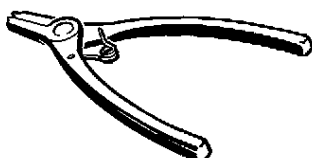
(B)

KML10008



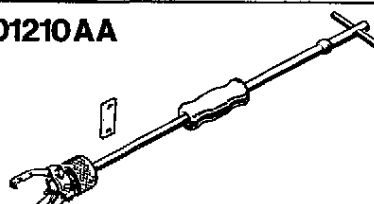
(C)

JDT-1



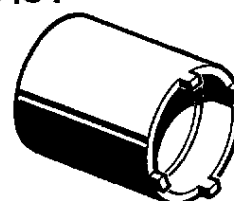
(D)

D-01210AA



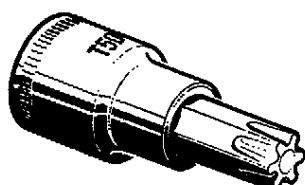
(E)

KJD10154



(F)

JT05614E



(G)

A-Removing and installing hex.
nut of hollow drive shaft
B-Removing and installing
hex. nut of differential
drive shaft

C-Removing and installing
slotted nut of front wheel
drive intermediate shaft
D-Removing and installing
snap rings

E-Removing needle bearing
of transmission oil pump
F-Removing and installing
special nut of differential
drive shaft
G-Removing and tightening TORX
screws of countershaft flange

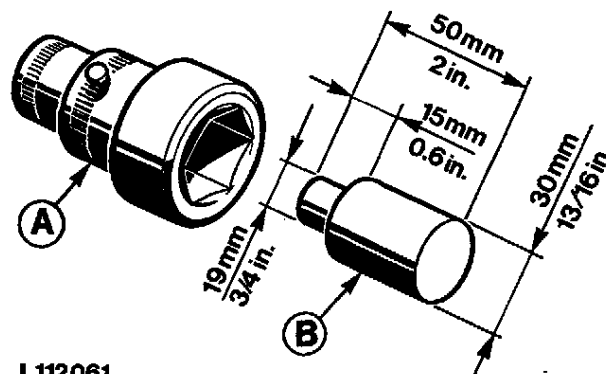
L125380

L125380-LB25035AE-010289

SPECIAL TOOL (Self-Manufacture)

**Guide Pin to Check Countershaft Rolling
Drag Torque**

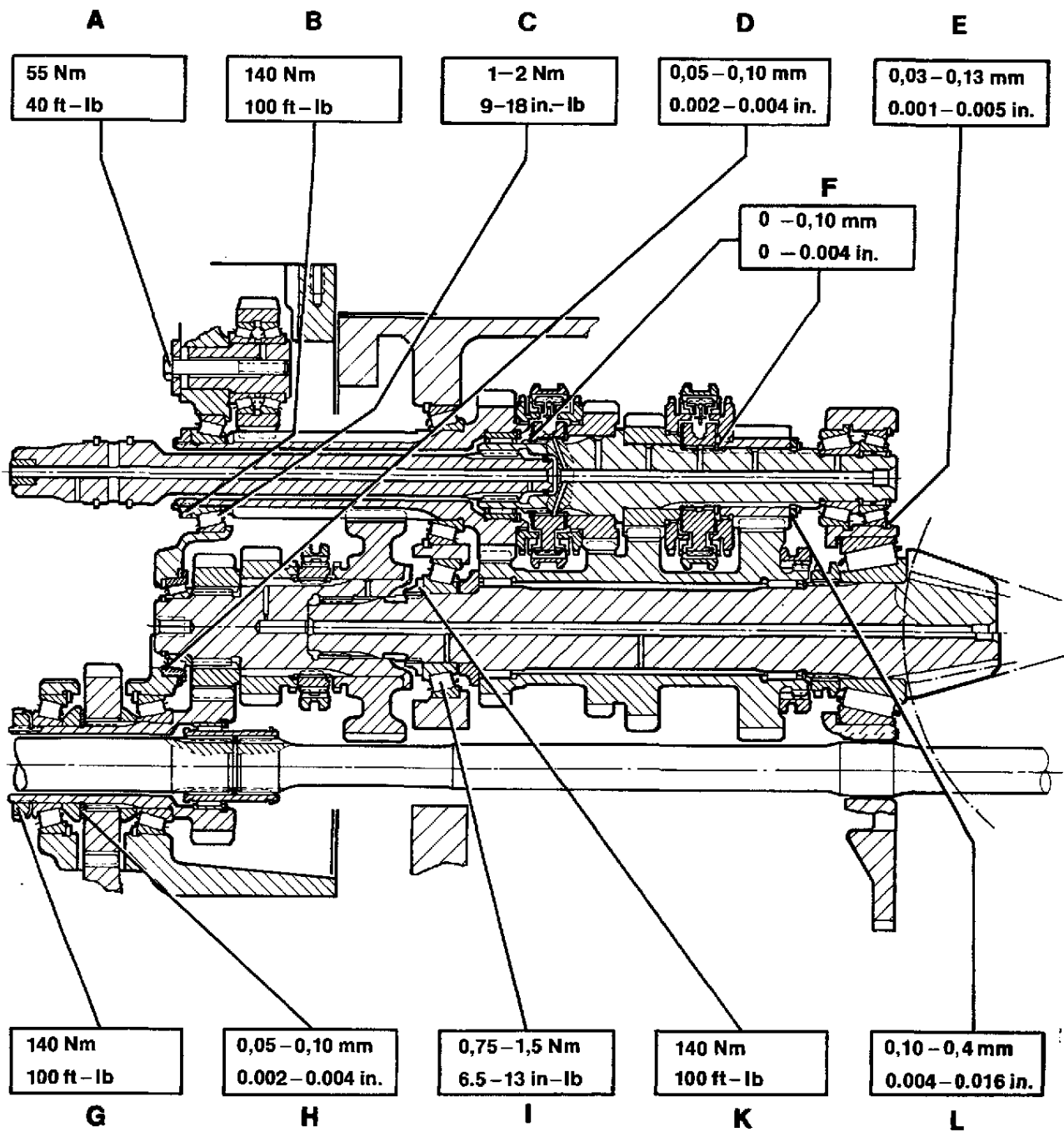
A-Special tool KML10006
B-Guide pin



L112061

L112061-LB25035AE-010886

SPECIFICATIONS



L 112 697

A-Torque, reverse gear
B-Torque, transmission hollow drive shaft
C-Countershaft rolling drag torque

D-Bearing preload, range shaft
E-Axial end play, transmission drive shaft
F-Axial end play, synchronizer assy.
G-Torque, intermediate shaft

H-Bearing preload, intermediate shaft
I-Rolling drag torque of differential drive shaft (new bearings)
K-Torque, differential drive shaft
L-Axial end play, 1st and 5th gears

L112697-LB25035AE-180387

ADJUSTING CONE POINT OF DIFFERENTIAL DRIVE SHAFT

Height of rear taper roller bearing	43.76 mm (1.723 in.)
Increase in bearing height after pressing in outer bearing cup	0.1 mm (0.004 in.)
Actual distance etched into pinion face, e.g.	161.66 mm (6.364 in.)
Actual distance stamped on serial no. plate	206.35 mm (8.124 in.)

NOTE: Continue to use old type plate when replacing transmission case. This measurement remains the same.

The following example of calculating thickness of shim pack to be installed between transmission case and taper roller bearing cup is based on the previously mentioned dimensions:

43.76 mm	1.723 in.
0.10 mm	0.004 in.
+ 161.66 mm	+ 6.364 in.
205.52 mm	8.091 in.
206.35 mm	8.124 in.
- 205.52 mm	- 8.091 in.
Shim pack thickness 0.83 mm	Shim pack thickness 0.033 in.

Add shim pack thickness of 0.85 mm (0.034 in.).
This example applies to most transmissions!

Further possibilities are:

Figure etched on face of pinion	Shim pack thickness
161.26 mm (6.349 in.)	1.25 mm (0.049 in.)
161.31 mm (6.351 in.)	1.20 mm (0.047 in.)
161.34 mm (6.352 in.)	1.15 mm (0.045 in.)
161.36 mm (6.353 in.)	1.15 mm (0.045 in.)
161.41 mm (6.355 in.)	1.10 mm (0.043 in.)
161.46 mm (6.357 in.)	1.05 mm (0.041 in.)
161.51 mm (6.361 in.)	1.00 mm (0.039 in.)
161.56 mm (6.361 in.)	0.95 mm (0.037 in.)
161.61 mm (6.363 in.)	0.90 mm (0.035 in.)
161.71 mm (6.367 in.)	0.80 mm (0.032 in.)
161.76 mm (6.369 in.)	0.75 mm (0.030 in.)
161.81 mm (6.370 in.)	0.70 mm (0.028 in.)
161.86 mm (6.372 in.)	0.65 mm (0.026 in.)
161.91 mm (6.374 in.)	0.60 mm (0.024 in.)

DIFFERENTIAL DRIVE SHAFT

Max. permissible end play of differential drive shaft before adjusting taper roller bearing preload	0.05 mm (0.002 in.)
Dimension to be added to measured end play of differential drive shaft	0.10 mm (0.004 in.)
Preload of differential drive shaft taper roller bearing	0.10 mm (0.004 in.)
Rolling drag torque of differential drive shaft with specified preload:	
– With new bearings	0.75 to 1.5 Nm (6.5 to 13 in-lb)
– With used bearings	0.4 to 0.75 Nm (3.5 to 6.5 in-lb)
Measured pull on spring scales with correct rolling drag torque of differential shaft bearings:	
– With new bearings	20 to 40 N (4.5 to 9 lb)
– With used bearings	10 to 20 N (2.2 to 4.5 lb)

RANGE SHAFT

Preload of taper roller bearings	0.05 to 0.10 mm (0.002 to 0.004 in.)
--	--------------------------------------

COUNTERSHAFT

Preload of transmission hollow drive shaft taper roller bearings	0.05 to 0.10 mm (0.002 to 0.004 in.)
Countershaft rolling drag torque with correct preload of bearings	1 to 2 Nm (9 to 18 in-lb)
End play of transmission drive shaft	0.03 to 0.13 mm (0.001 to 0.005 in.)

TRANSMISSION BEARING QUILL

Preload of intermediate shaft taper roller bearings	0.05 to 0.10 mm (0.002 to 0.004 in.)
---	--------------------------------------

TRANSMISSION OIL PUMP

Clearance between gears and sealing surface of carrier and sleeve assembly	0.03 to 0.05 mm (0.001 to 0.002 in.)
--	--------------------------------------

TORQUES FOR HARDWARE

SYNCHRONIZED TRANSMISSION

Reverse gear, cap screw	55 Nm (40 ft-lb)
Differential drive shaft, special hex. nut or special nut	140 Nm (100 ft-lb)
Transmission hollow drive shaft, hex. nut	140 Nm (100 ft-lb)
Intermediate shaft, slotted nut	140 Nm (100 ft-lb)
Bearing quill to transmission case, cap screws	50 Nm (35 ft-lb)
Bearing cover to transmission bearing quill, cap screws	55 Nm (40 ft-lb)
Countershaft bearing flange, TORX screws	60 Nm (45 ft-lb)
Countershaft bearing quill, cap screws	120 Nm (85 ft-lb)
Transmission oil cup to transmission case, cap screws	30 Nm (25 ft-lb)

TRANSMISSION OIL PUMP

Transmission oil pump, attaching cap screws	55 Nm (40 ft-lb)
Transmission oil pump to clutch housing, cap screws	55 Nm (40 ft-lb)

SYNGETR-LB25035BE-010289

SYNCHRONIZED TRANSMISSION – PREPARATORY WORK

Separate tractor between clutch housing and transmission case; see Section 10, Group 25.

Remove rockshaft; see Section 10, Group 25.

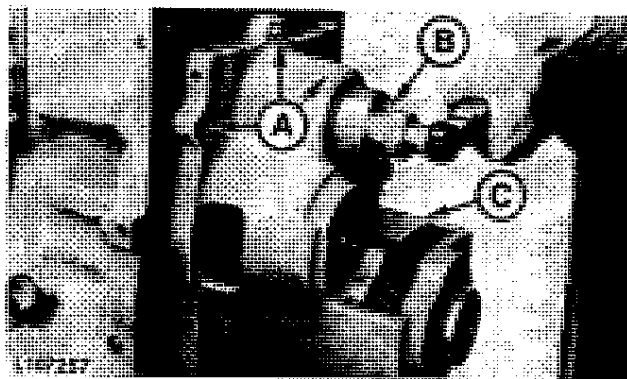
Remove transmission shift linkage; see Group 30 or 35.

Remove rockshaft control arm; see Section 70, Group 15.

SYNGETR-LB35040BE-010287

REMOVING TRANSMISSION BEARING QUILL

Unlock hex. nut of countershaft and remove, using special socket KML10006 (B). Remove screws (A) and lift out transmission bearing quill (C). This releases countershaft bearing and shifter fork behind bearing quill.



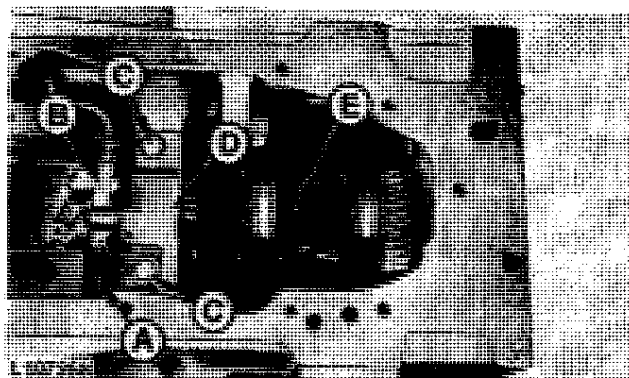
L107257-LA75025AE-001184

REMOVING COUNTERSHAFT

Remove cover (A), transmission oil cup (B) and bearing quill (D).

A-Cover
B-Transmission oil cup
C-Cap screws

D-Bearing quill
E-Countershaft



L107258-LB35040AE-010287

Synchronized Transmission and Transmission Oil Pump

Remove snap ring (A)* or bearing quill (C)**. With countershaft raised press bearing (B) to the front. Countershaft can now be lifted out from the top.

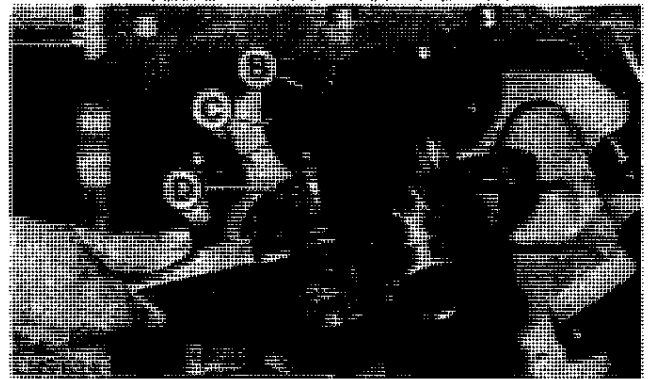
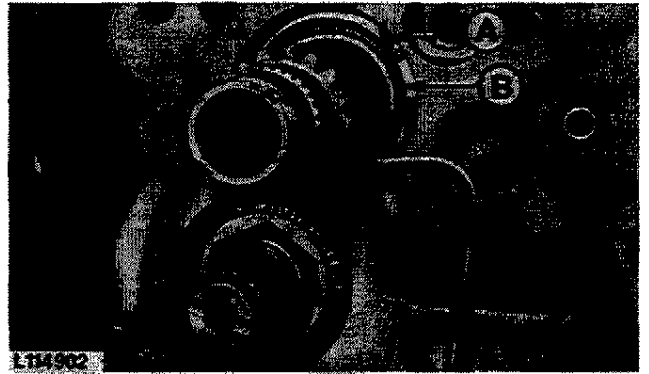
NOTE: Countershaft consists of two groups of shafts which may fall apart during removal.

NOTE: Loosen TORX screws of bearing flange (C)** using socket JT05614E (D).

A-Snap ring
B-Bearing
C-Bearing quill
D-Socket JT05614E

* Up to Tractor Serial No. 642 319L

** From Tractor Serial No. 642 320L

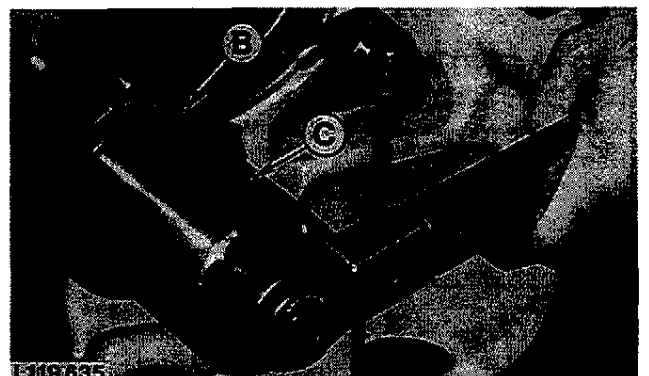
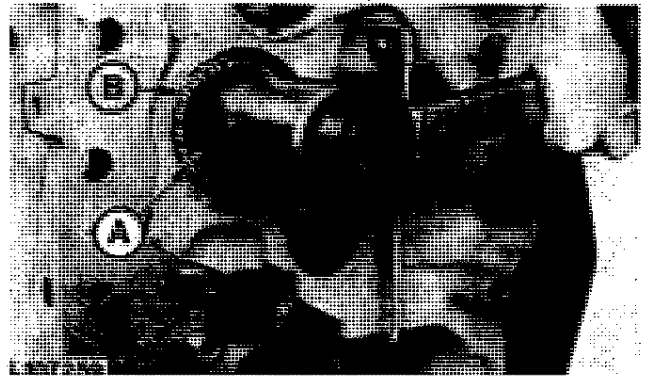


L114902, L119634-LB35040AE-010888

REMOVING DIFFERENTIAL DRIVE SHAFT

Remove differential. See Group 50.

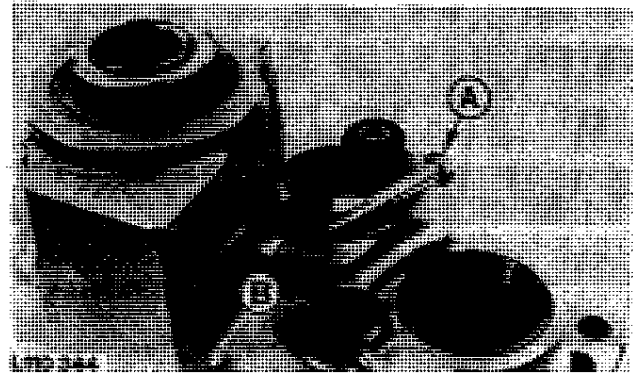
Remove hex. nut or special nut of differential drive shaft using special socket KML10007 (A) or KJD10154 (C). Drive back differential drive shaft until bearing (B) is free. Remove differential drive shaft.



L107259, L119635-LB35040AE-010888

REMOVING REVERSE GEAR

Remove cap screw (A) and press out shaft (B).



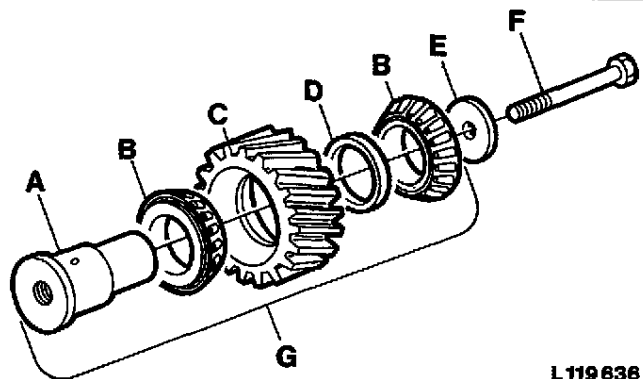
L110344-LA75025AE-051184

INSTALLING REVERSE GEAR

Tighten cap screw (F) to 55 Nm (40 ft-lb).

A—Shaft
B—Taper roller bearing
C—Reverse gear

D—Spacer bushing
E—Thrust washer
F—Cap screw
G—Repair kit



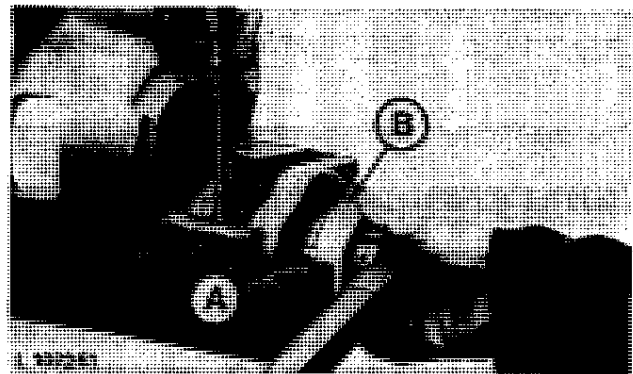
L119636

L119636-LB25035AE-010488

NOTE: The repair kit (G) is supplied adjusted.

REMOVING INTERMEDIATE GEAR

Loosen slotted nut (A) with ring nut socket KML10008 (B).



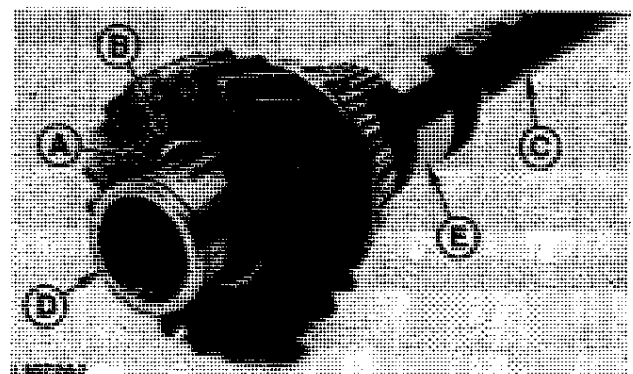
L107261-LA75025AE-051184

REPLACING INTERMEDIATE SHAFT NEEDLE BEARING

Remove snap ring (A).
Press out connecting sleeve (D) with needle bearing (B) from intermediate shaft (E) by means of PTO shaft (C).

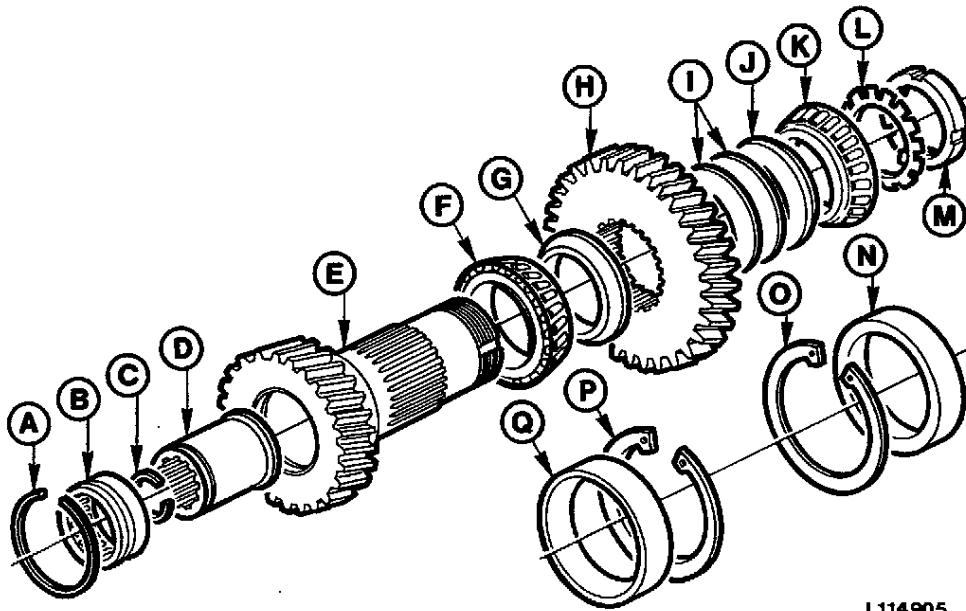
A—Snap ring
B—Needle bearing
C—PTO shaft

D—Connecting sleeve
E—Intermediate shaft



L107262-LA75025AE-051184

INSTALLING INTERMEDIATE SHAFT



L114905

A—Snap ring
B—Needle bearing
C—Snap ring
D—Connecting sleeve
E—Intermediate shaft
F—Bearing cone

G—Thrust ring
H—Idler gear
I—Shims (use as required)
J—Thrust ring
K—Bearing cone

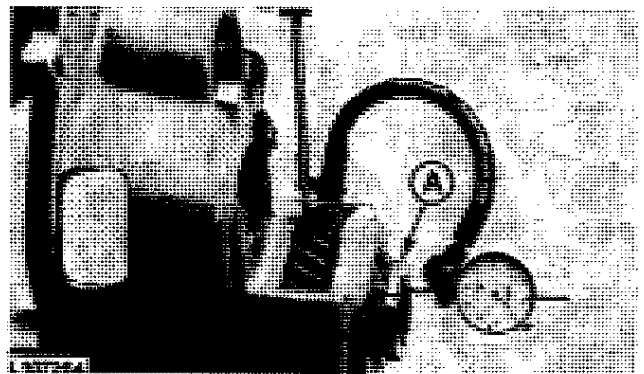
L—Locking tab
M—Slotted nut
N—Bearing cup
O—Snap ring
P—Snap ring
Q—Bearing cup

Install as many shims (I) as required to obtain a measureable end play.
Tighten slotted nut (M) to 140 Nm (100 ft-lb).

L114905-LB25035AE-010886

DETERMINING INTERMEDIATE SHAFT TAPER ROLLER BEARING PRELOAD

Add 0.05 to 0.10 mm (0.002 to 0.004 in.) to measured end play and remove shim pack of calculated thickness.
Tighten slotted nut (A) to 140 Nm (100 ft-lb) and secure with locking tab.



L107264-LB25035AE-010886

CONE POINT ADJUSTMENT

Calculate required shim pack (H) between transmission case and rear taper roller bearing cup (B):

Height of taper roller bearing (A): 43.76 mm (1.723 in.)

Increase in bearing height after pressing in bearing cup: 0.10 mm (0.004 in.)

Actual dimension (E) etched onto face of bevel gear, e.g.: 161.66 mm (6.364 in.)

Dimension stamped on data plate: 206.35 mm (8.124 in.)

NOTE: Continue to use old data plate should you replace the transmission case. Cone point adjustment remains the same.

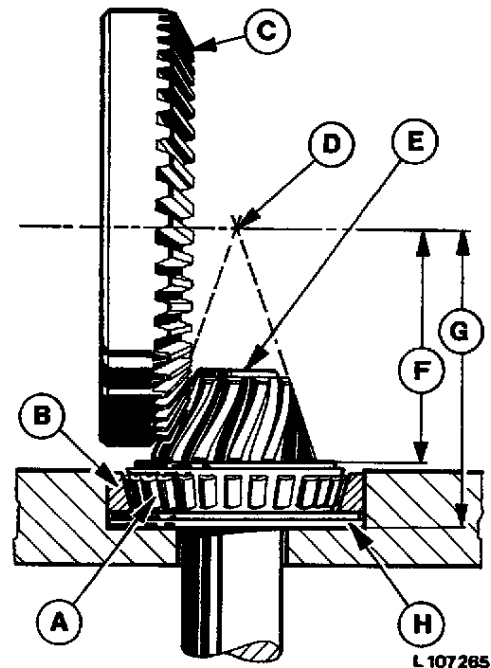
43.76 mm	1.723 in.
0.10 mm	0.004 in.
+ 161.66 mm	+ 6.364 in.
205.52 mm	8.091 in.
206.35 mm	8.124 in.
- 205.52 mm	- 8.091 in.
0.83 mm Shim pack thickness	0.033 in.

From the available shims of 0.1 mm, 0.15 mm and 0.25 mm (0.003 in., 0.005 in. and 0.010 in.), make up a shim pack of 0.85 mm (0.034 in.) thickness.

This example applies to most transmissions!

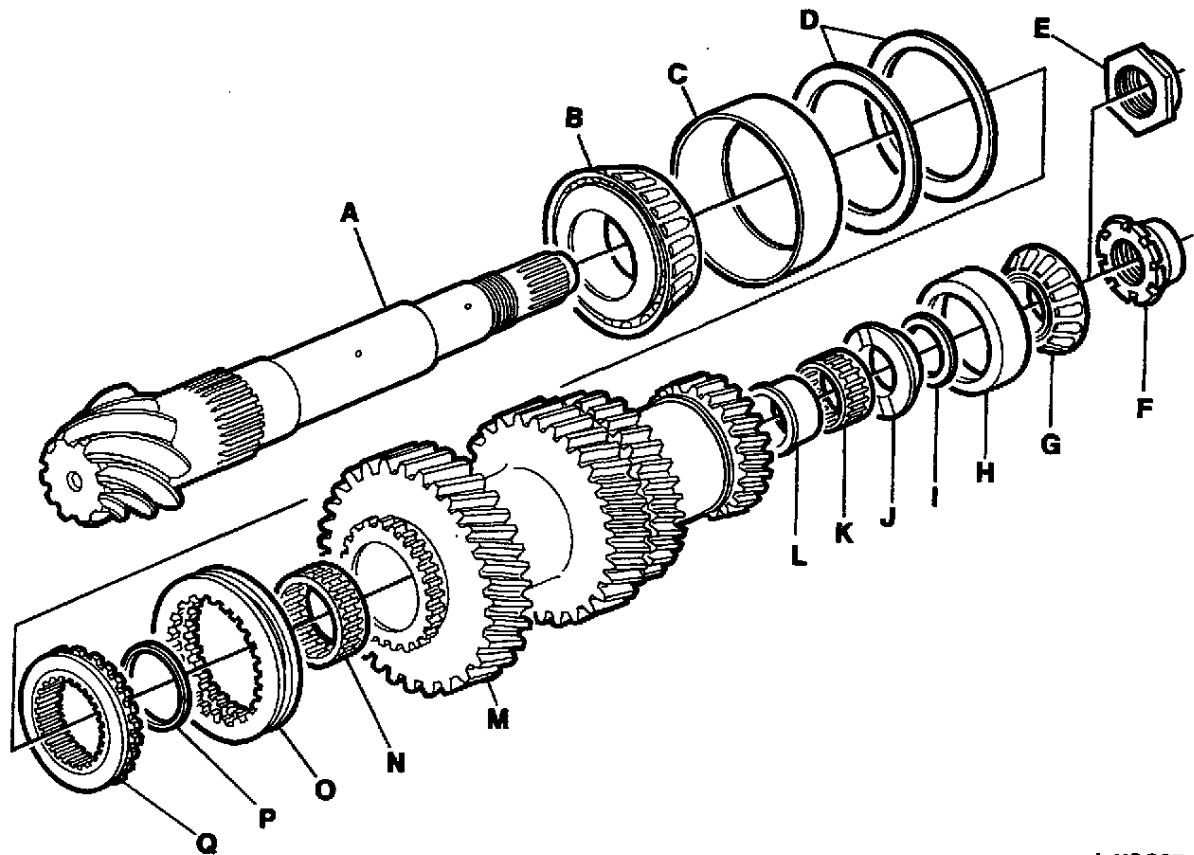
NOTE: Ring gear (C) is not yet installed.

A—Bearing cone	F—Dimension between centerline of ring gear to base of bevel gear
B—Bearing cup	G—Dimension between centerline of ring gear to face of transmission case
C—Ring gear	H—Shims
D—Cone point	
E—Actual dimension etched on bevel gear	



L107285-LB25035AE-010886

DIFFERENTIAL DRIVE SHAFT, EXPLODED VIEW



L 119637

A-Differential drive shaft
B-Taper roller bearing cone
C-Taper roller bearing cup
D-Shims (use as required)
E-Special hex. nut*
F-Special nut**

G-Taper roller bearing cone
H-Taper roller bearing cup
I-Spacer washer
J-Spacer
K-Needle bearing

L-Needle bearing race
M-Hollow shaft gear
N-Needle bearing
O-Shifter sleeve
P-Thrust washer
Q-Shifter collar

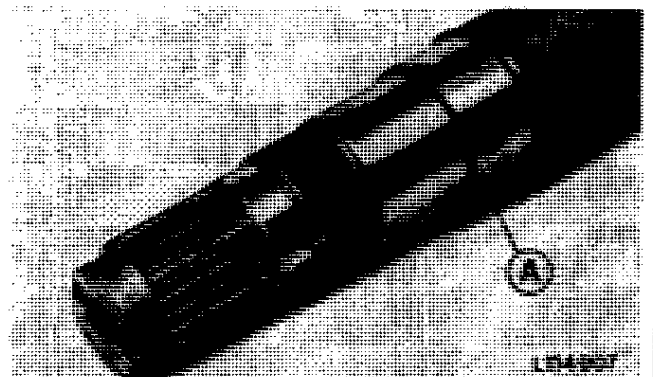
* On earlier tractor series

** On later tractor series

L119637-LB35040AE-010888

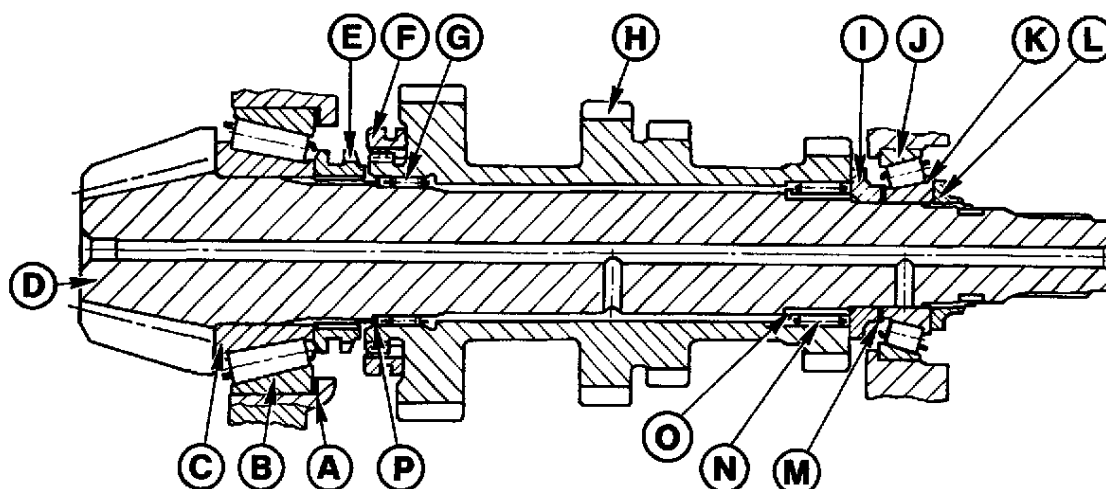
REPLACING NEEDLE BEARING RACE

Heat new needle bearing race (A) before fitting on shaft.



L114907-LB25035AE-010886

INSTALLING DIFFERENTIAL DRIVE SHAFT



L114914

A-Shims (use as required)
B-Taper roller bearing cup
C-Taper roller bearing cone
D-Differential drive shaft
E-Shifter collar

F-Shifter sleeve
G-Needle bearing
H-Hollow shaft
I-Spacer (thickness as reqd.)
J-Taper roller bearing cup

K-Taper roller bearing cone
L-Special hex. nut/special nut
M-Spacer washer
N-Needle bearing
O-Needle bearing race
P-Thrust ring

Install calculated number of shims (A) and rear bearing cup (B). Insert front bearing cup (J).

Preassemble hollow shaft (H) with both needle bearings (G and N) and shifter sleeve (F).

Heat bearing cone (C) and slide onto differential drive shaft.

Position shifter collar (E) and thrust ring (P).

IMPORTANT: Should front face of hollow drive shaft (H) have no oil groove facing spacer (I), then install a spacer with oil groove.

Install differential drive shaft and preassembled hollow shaft, including spacer (I) and spacer washer (M).

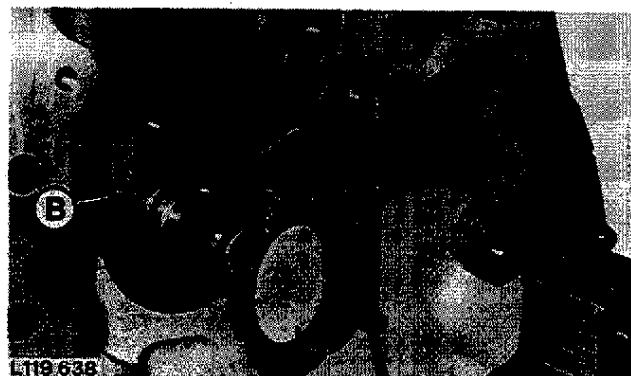
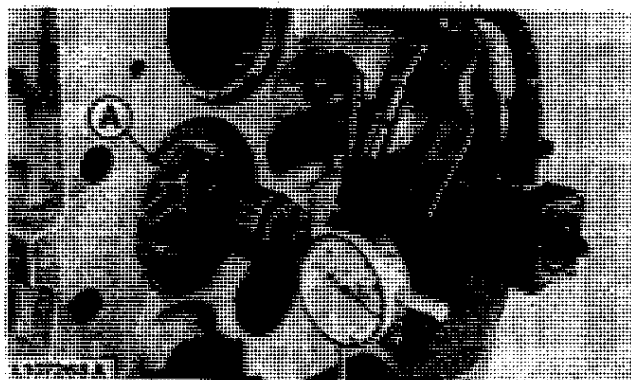
Install spacer (I) of a thickness so that there is a measurable axial play of differential drive shaft.

Using special tool KML10007 or KJD10154 tighten special hex. nut or special nut (L) to 140 Nm (100 ft-lb).

L114914-LB25035AE-000488

ADJUSTING DIFFERENTIAL DRIVE SHAFT PRELOAD

Add 0.10 mm (0.004 in.) to measured axial play and install a spacer with a thickness less the calculated measurement. Tighten hex. nut (A) or special nut (B) to 140 Nm (100 ft-lb). After several blows on shaft ends, recheck torque. Lock hex. nut (A) on shaft groove (see arrow).



L107266A, L119638-LB25035AE-010488

ADJUSTING DIFFERENTIAL DRIVE SHAFT ROLLING DRAG TORQUE

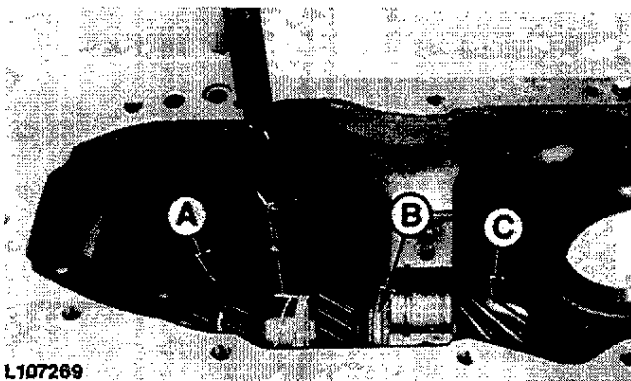
Connect hollow shaft (A) to differential drive shaft (C) by means of shifter sleeve (B).

To achieve a rolling drag torque of 0.75 to 1.5 Nm (6.5 to 13 in-lb) with new bearings or 0.4 to 0.75 Nm (3.5 to 6.5 in-lb) with used bearings, following values must be indicated by spring scales:

With new bearings: 20 to 40 N (4.5 to 9 lb)

With used bearings: 10 to 20 N (2.2 to 4.5 lb)

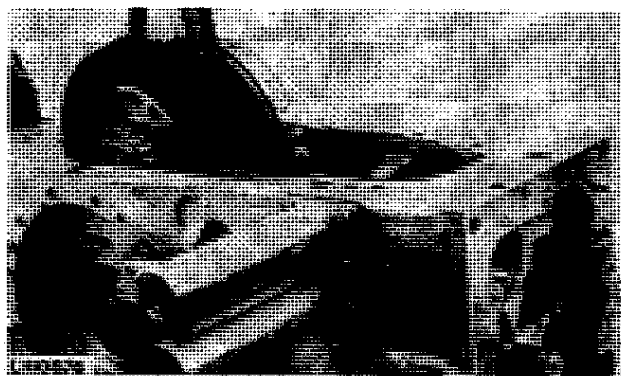
Install spacer (I) with another thickness if these values are not reached (see sectional view under "Installing Differential Drive Shaft").



L107269-LB35035AE-010287

INSTALLING DIFFERENTIAL

Install differential, see Group 50.

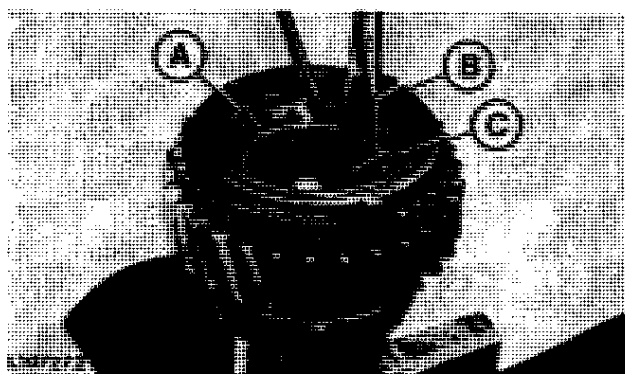


L110676-LB35040AE-010287

REPLACING NEEDLE BEARING OF HOLLOW DRIVE SHAFT

Remove snap ring (A) with a tightly fitting screwdriver (B).

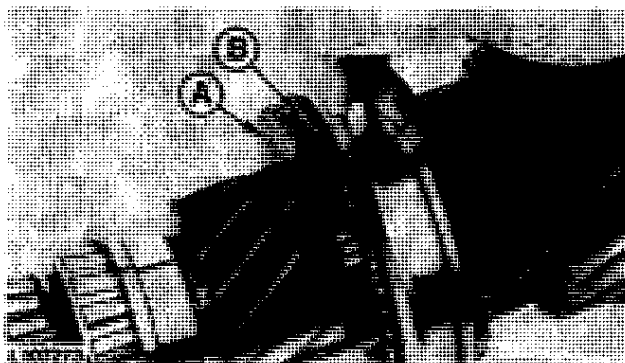
Remove needle bearing (C).



L107272-LA75025AE-051184

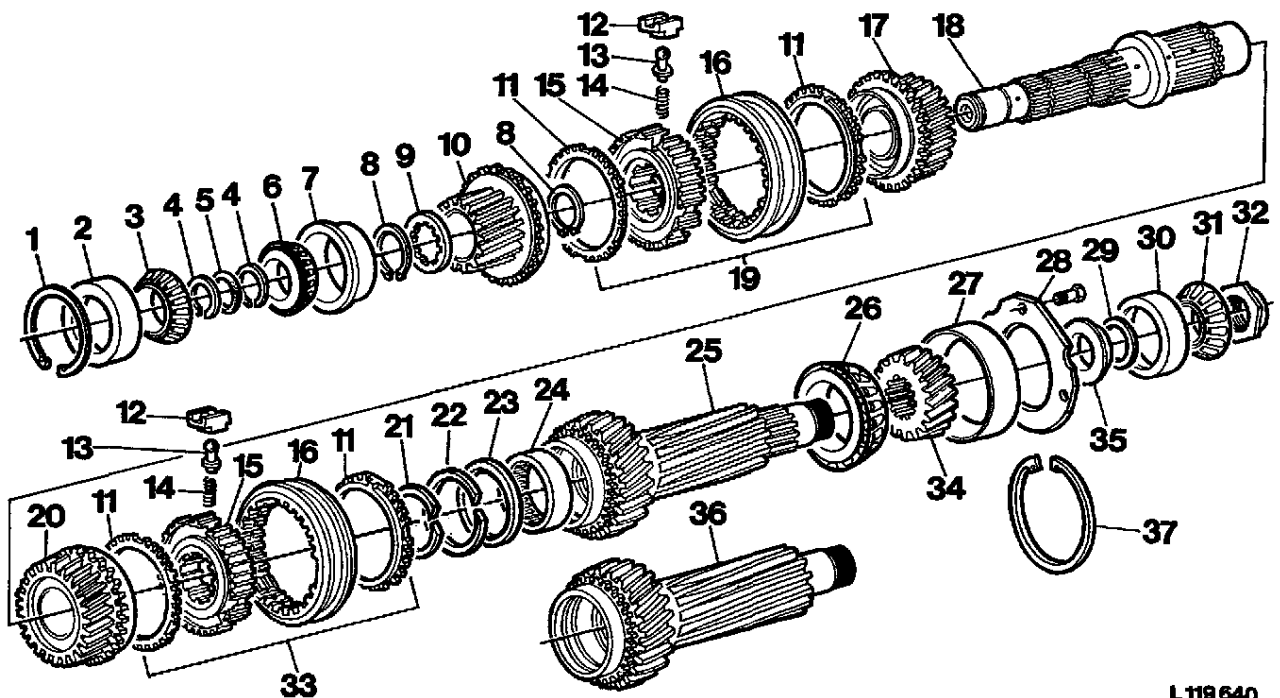
CHECKING SYNCHRONIZER RINGS

Replace synchronizer rings if gap between gear synchronizer ring (B) and gear clutch body (A) is less than 0.10 mm (0.004 in.).



L107273-LB25035AE-010886

COUNTERSHAFT, EXPLODED VIEW



L 119 640

- 1-Snap ring
- 2-Taper roller bearing cup
- 3-Taper roller bearing cone
- 4-Snap rings
- 5-O-ring
- 6-Taper roller bearing cone
- 7-Taper roller bearing cup
- 8-Snap rings
- 9-Internal splined thrust washer
- 10-Gear, 1st and 5th

- 11-Synchronizer ring
- 12-Thrust block (6 used)
- 13-Ball pin (6 used)
- 14-Synchronizer spring (6 used)
- 15-Synchronizer body
- 16-Shifter sleeve
- 17-Gear, 2nd and 6th
- 18-Transmission drive shaft
- 19-Synchronizer assembly, 1st, 2nd, 5th and 6th gear

- 20-Gear, 3rd and 7th
- 21-Snap ring
- 22-Snap ring
- 23-Thrust ring
- 24-Needle bearing
- 25-Transmission hollow drive shaft, 4th and 8th gear, range I*
- 26-Taper roller bearing cone
- 27-Taper roller bearing cup
- 28-Bearing flange****
- 29-Spacer washer

- 30-Taper roller bearing cup
- 31-Taper roller bearing cone
- 32-Hex. nut
- 33-Synchronizer assembly, 3rd, 4th, 7th and 8th gear
- 34-Gear, reverse range drive
- 35-Spacer (thickness as reqd.)
- 36-Transmission hollow drive shaft, 4th and 8th gear, range I**
- 37-Snap ring***

* Up to 30 km/h (18.5 mph)

** Up to 40 km/h (25 mph)

*** Up to Tractor Serial No. 642 319L

**** From Tractor Serial No. 642 320L

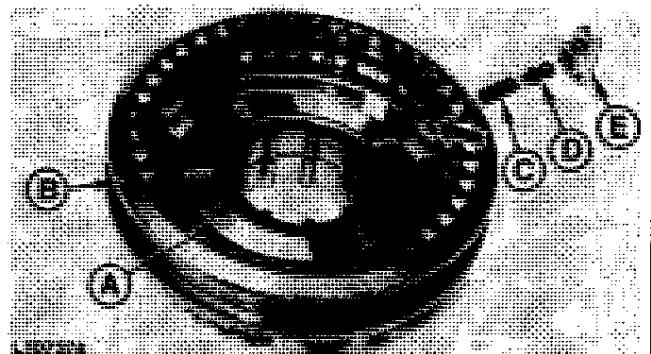
L119640-LB35040AE-010888

ASSEMBLING SYNCHRONIZER ASSEMBLY

Install synchronizer gear (A) so that thrust block (E) with ball pin (D) and spring (C) engage with 3rd tooth of shifter sleeve (B).

- A-Synchronizer gear
- B-Shifter sleeve
- C-Spring

- D-Ball pin
- E-Thrust block

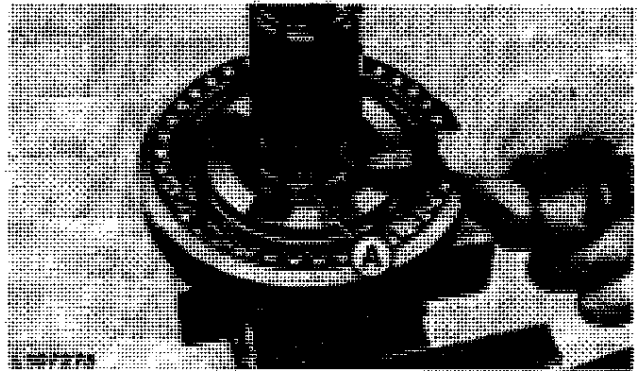


L107274-LA75025AE-001184

ASSEMBLING TRANSMISSION DRIVE SHAFT

Install one snap ring (A) to give an axial play of 0 to 0.1 mm (0 to 0.004 in.).

NOTE: Snap ring (A) is available with a thickness of:
1.45 mm (0.057 in.); 1.55 mm (0.061 in.);
1.65 mm (0.065 in.) and 1.75 mm (0.069 in.).

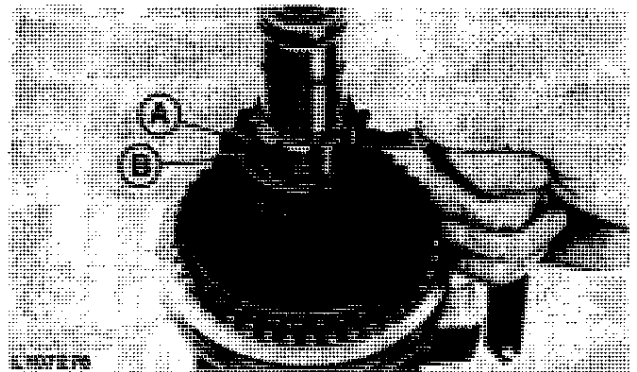


L107275-LA75025AE-001184

Install one snap ring (A) to give an axial play of 0 to 0.4 mm (0 to 0.016 in.).

NOTE: Snap ring (A) is available with a thickness of:
1.45 mm (0.057 in.); 1.55 mm (0.061 in.);
1.65 mm (0.065 in.) and 1.75 mm (0.069 in.).

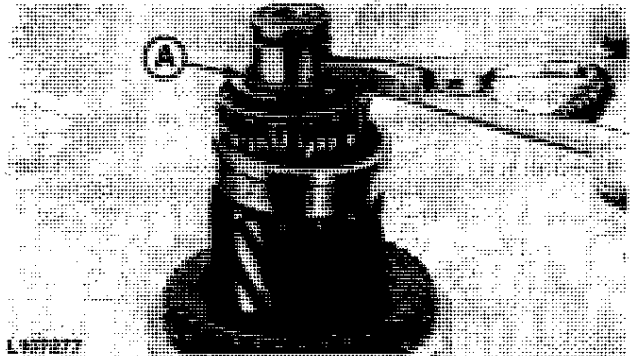
A-Snap ring
B-Internal splined thrust washer



L107276-LA75025AE-001184

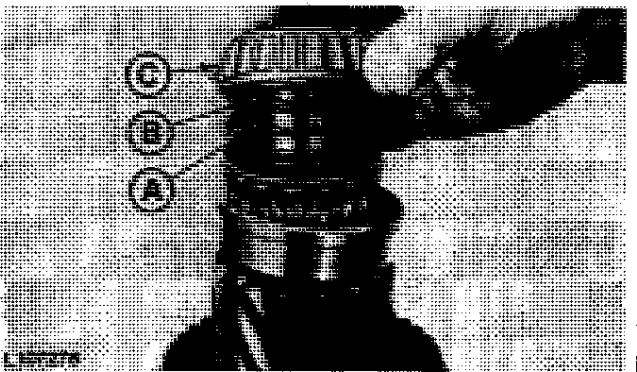
Install snap ring (A), choosing a snap ring which still fits in groove and gives minimum axial play.

NOTE: Snap ring (A) is available with a thickness of:
2 mm (0.080 in.); 2.1 mm (0.082 in.) and
2.2 mm (0.086 in.).



L107277-LA75025AE-001184

Slide O-ring (A) onto shaft. Install snap ring (B) and bearing cone (C).



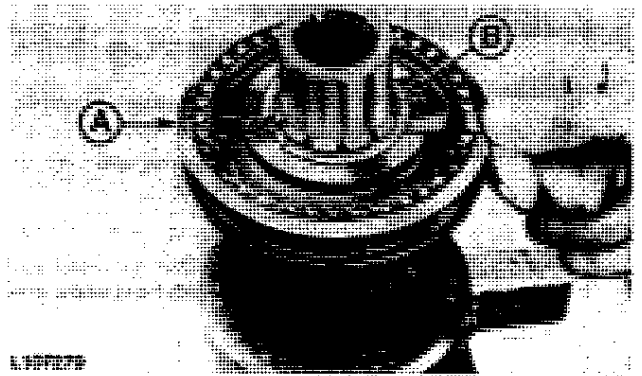
L107278-LA75025AE-051184

ASSEMBLING TRANSMISSION DRIVE SHAFT (Contd.)

Install synchronizer assembly (A) so that lube groove of shifter body is aligned with lube bore in shaft.

Install one snap ring (B) to give an axial play of 0 to 0.1 mm (0 to 0.004 in.).

NOTE: Snap ring (A) is available with a thickness of:
1.45 mm (0.057 in.); 1.55 mm (0.061 in.);
1.65 mm (0.065 in.) and 1.75 mm (0.069 in.).



L107279-LA75025AE-001184

DISASSEMBLING RANGE SHAFT

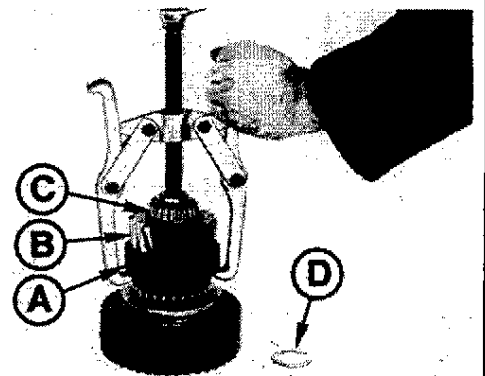
After removing snap ring (D)*, bearing (C) can be removed by pulling off reverse gear (A) and drive gear (B)**.

A-Reverse gear
B-Drive gear**

C-Bearing
D-Snap ring*

* Tractors without front wheel drive

** Tractors with front wheel drive



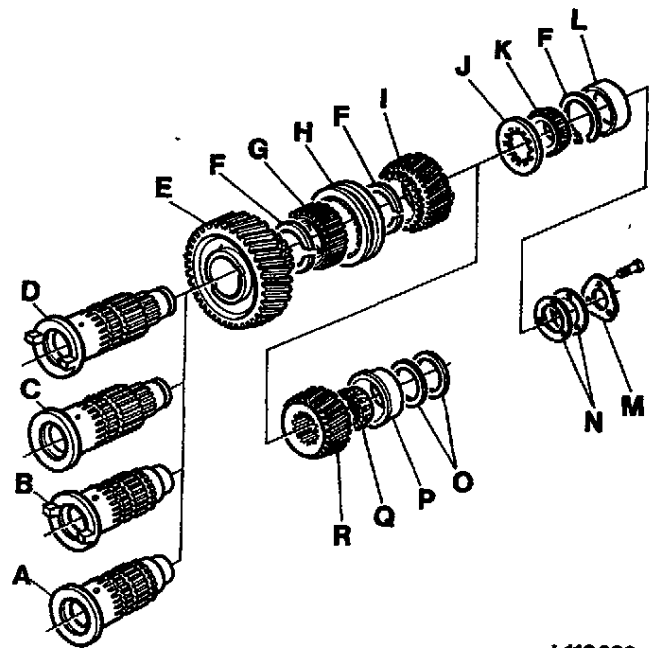
L107270

L107270-LB25035AE-010488

ASSEMBLING RANGE SHAFT

On earlier tractor series, slide shifter collar (G) with recess over the snap ring (F) already installed. Slide range shaft onto differential drive shaft.

- A—Range shaft*
- B—Range shaft**
- C—Range shaft (with front wheel drive)*
- D—Range shaft (with front wheel drive)**
- E—Gear, range I
- F—Snap rings
- G—Shifter collar
- H—Shifter sleeve
- I—Gear, reverse range
- J—Thrust washer
- K—Taper roller bearing cone
- L—Taper roller bearing cup
- M—Cover
- N—Shims (use as required)
- O—Shims (use as required)***
- P—Taper roller bearing cup***
- Q—Taper roller bearing cone***
- R—Drive gear (front wheel drive)***



L119639

* Earlier tractor series

** Later tractor series

*** With front wheel drive

L119639-LB35040AE-010888

On later tractor series, turn transmission drive shaft until a groove of special nut (A) is position approx. over the centre of a tooth of transmission drive shaft (see arrows).

Slide range shaft (B) with arrow mark facing upwards onto transmission drive shaft. Should the range shaft not engage, turn slightly to the right or left and slide on again.

Install all parts of range shaft.

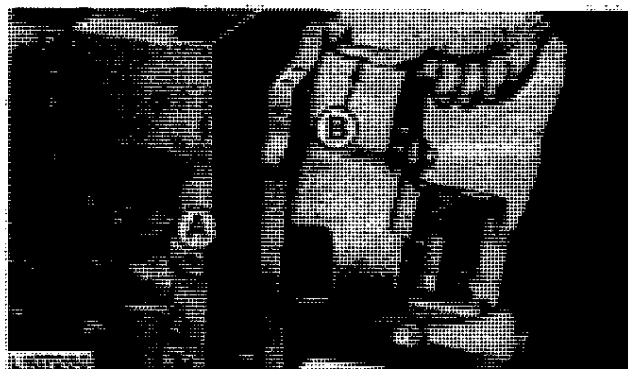


L119641-LB35040AE-010888

ADJUSTING RANGE SHAFT PRELOAD

Slide range shaft onto differential drive shaft. Press bearing cup into transmission case bearing quill without shims. Install transmission bearing quill (A) using a shifting rod (B).

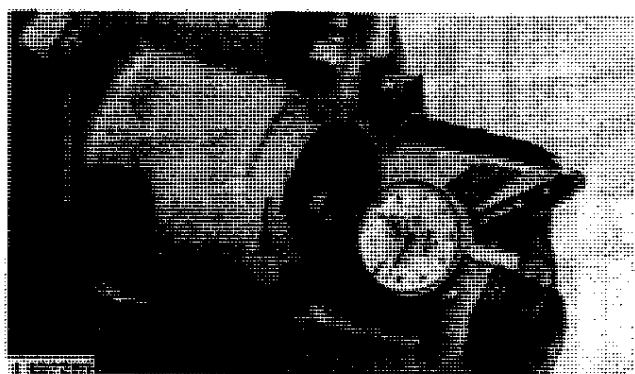
Tighten securing screws to 50 Nm (35 ft-lb).



L107280-LB25035AE-010886

Tractors With Front Wheel Drive

Add 0.05 to 0.10 mm (0.002 to 0.004 in.) to measured axial play and install shim pack with calculated thickness.



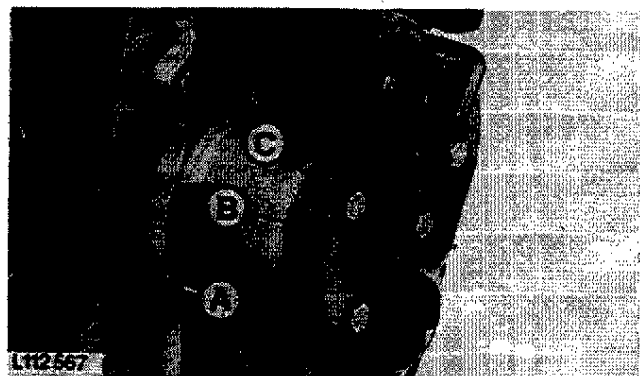
L107281-LB35040AE-010287

Tractors Without Front Wheel Drive

Add 0.05 to 0.10 mm (0.002 to 0.004 in.) to measured axial play and remove shim pack with calculated thickness.

Tighten cap screws (C) to 55 Nm (40 ft-lb).

A-Shims
B-Bearing cover
C-Cap screws



L112567-LB35040AE-000287

INSTALLING COUNTERSHAFT

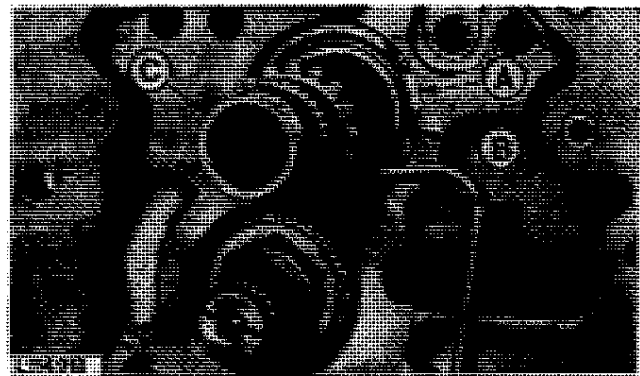
Install bearing cup (A) without snap ring (B)* or bearing flange (D)**.

Install preassembled countershaft (C).

Install snap ring (B)* or bearing flange (D)**.

Coat the threads of TORX screws (E) with Loctite 242 (L41475) and tighten to 60 Nm (45 ft-lb) using socket JT05614E (F).

- A-Bearing cup
- B-Snap ring
- C-Countershaft
- D-Bearing flange
- E-TORX screws
- F-Socket with 1/2 in. square drive JT05614E



* Up to Tractor Serial No. 642 319L

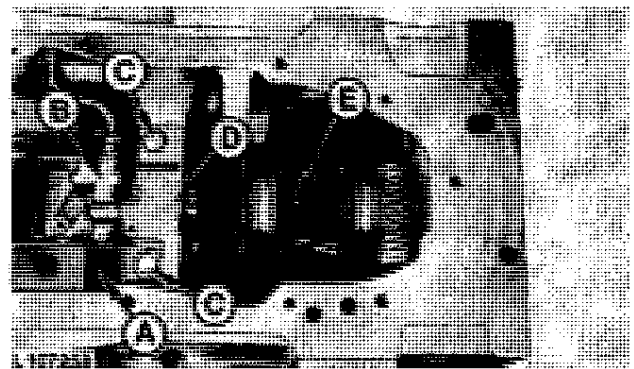
** From Tractor Serial No. 642 320L

L114918, L119642-LB35040AE-010888

INSTALLING BEARING QUILL

Do not install cover (A) or transmission oil cup (B) at this stage.

- A-Cover
- B-Transmission oil cup
- C-Cap screws
- D-Bearing quill
- E-Countershaft



L107258-LB35040AE-010287

INSTALLING SNAP RING

Install snap ring (B), thereby using a snap ring which just fits in groove, resulting in minimum axial play.

NOTE: Snap ring (A) is available with a thickness of:
1.8 mm; 1.9 mm; 2 mm; 2.1 mm; 2.2 mm
(0.071 in.; 0.075 in.; 0.079 in.; 0.082 in.;
0.086 in.).

Tighten cap screws (A) to 120 Nm (85 ft-lb).

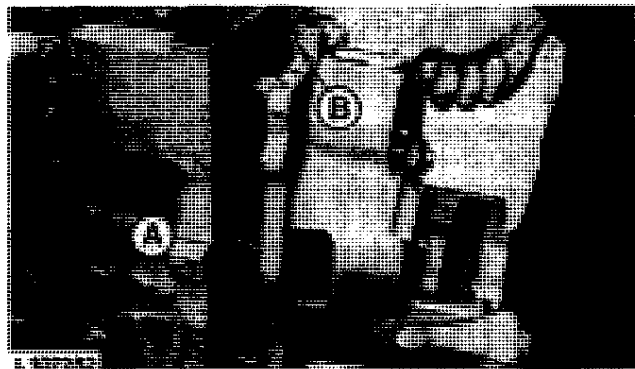


L107285-LB25035AE-010896

INSTALLING TRANSMISSION BEARING QUILL

Position shifter fork (B) in shifter collar.

NOTE: When installing transmission bearing quill (A),
make sure that shifter fork (B) does not jam.

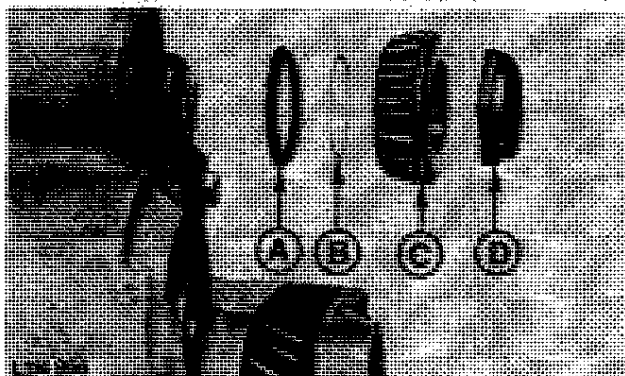


L107282-LA75025AE-051184

ADJUSTING COUNTERSHAFT PRELOAD

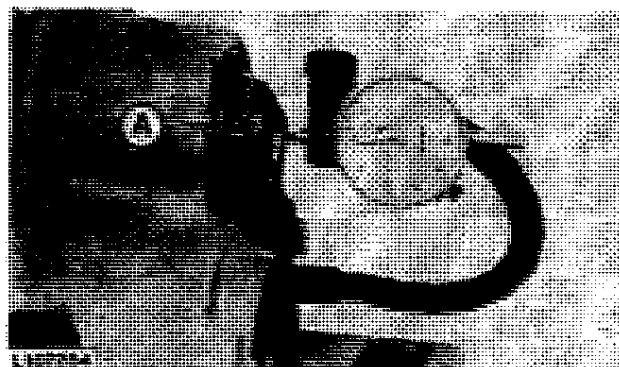
Install spacer (A) with a thickness so that a measurable axial play is obtained. Using socket KML10006, tighten hex. nut (D) to 140 Nm (100 ft-lb).

A—Spacer (thickness as required) C—Taper roller bearing cone
B—Spacer washer D—Hex. nut



L114966-LB25035AE-010886

Add 0.05 to 0.10 mm (0.002 to 0.004 in.) to measured axial play and install a spacer with a thickness less the calculated measurement. Tighten hex. nut (A) to 140 Nm (100 ft-lb).



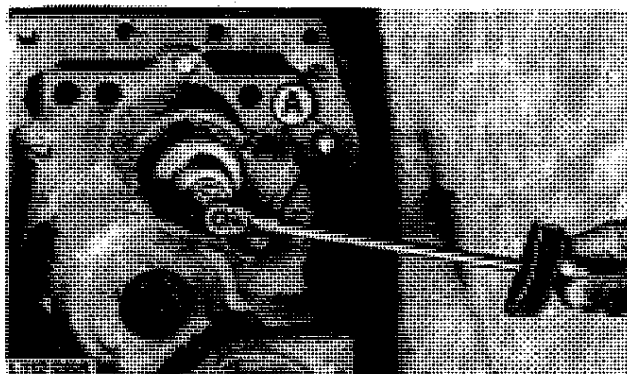
L107284-LB25035AE-010886

MEASURING COUNTERSHAFT ROLLING DRAG TORQUE

Countershaft shifter sleeves in neutral position.
Differential drive shaft and reverse gear not engaged.
Rotate countershaft evenly several times.

Rolling drag torque: 1 to 2 Nm (9 to 18 in-lb).
(When necessary, add or remove shims.)

A—Special tool KML10006 with
guide pin (self-manufacture)



L112088-LB35040AE-010287

FINAL ASSEMBLY

Install ring gear cover plate (when equipped) and rockshaft load control arm, see Section 70, Group 15.

Install transmission shift linkage, see Group 30.

Install rockshaft, see Section 10, Group 25.

Join tractor between clutch housing and transmission case, see Section 10, Group 25.

SYNGETR-LB35040CE-010287

TRANSMISSION OIL PUMP – PREPARATORY WORK

Separate clutch housing from transmission case, see Section 10, Group 25.
Remove Hi-Lo shift unit, see Group 20.
Remove creeper transmission, see Group 25.
Remove drive for mechanical front-wheel drive.
Remove PTO clutch from clutch housing, see Group 60.

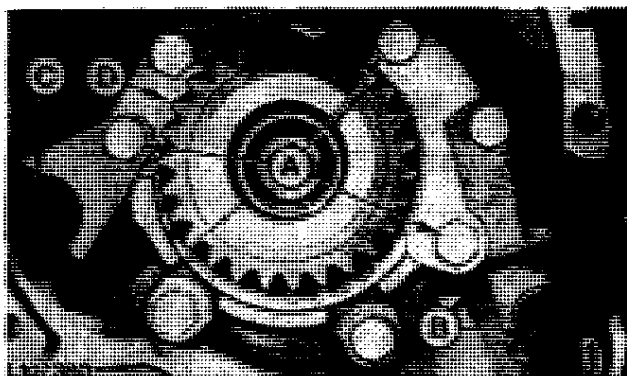
SYNGETR-LB35040DE-010287

REMOVING TRANSMISSION OIL PUMP

Remove attaching screws (A).
Remove lines (B and C).
Remove transmission oil pump (D).

A-Attaching screws
B-Line

C-Line
D-Transmission oil pump



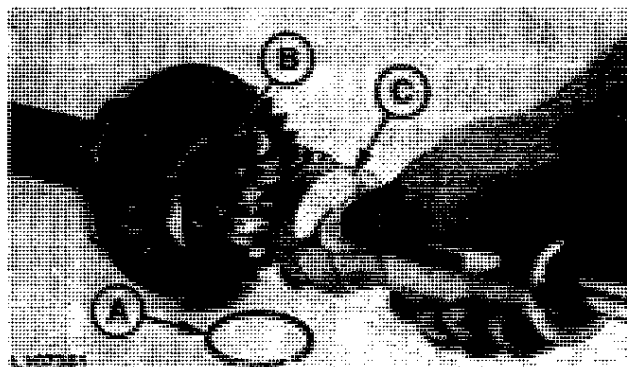
L107380-LB25035AE-010686

REPLACING NEEDLE BEARING

Remove snap ring (A).
Remove needle bearing (B) using puller D-01210AA (C).

Lips of oil seal behind needle bearing must face towards the front when being installed.

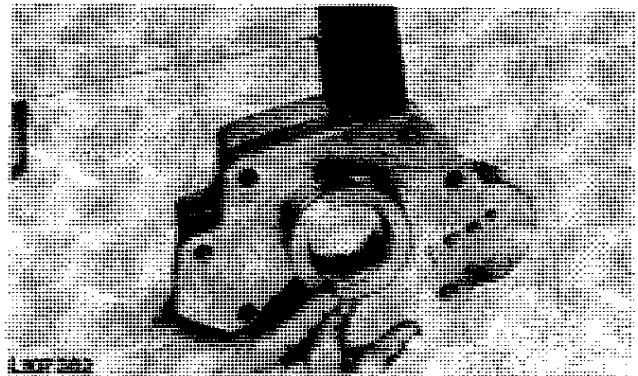
NOTE: From Tractor Serial No. 662 748L press in cap behind seal ring with rounded edges against shoulder of shaft bore.



L107381-LB35040AE-010688

SEPARATING PUMP HOUSING

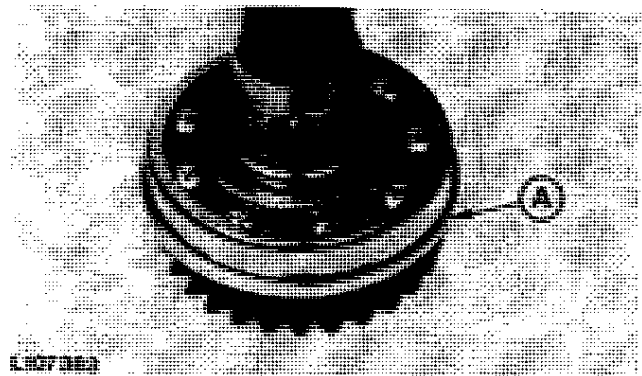
Break sealant between pump halves by applying light blows to circumference of pump housing.



L107382-LB25035AE-010488

ASSEMBLING HOLLOW DRIVE SHAFT

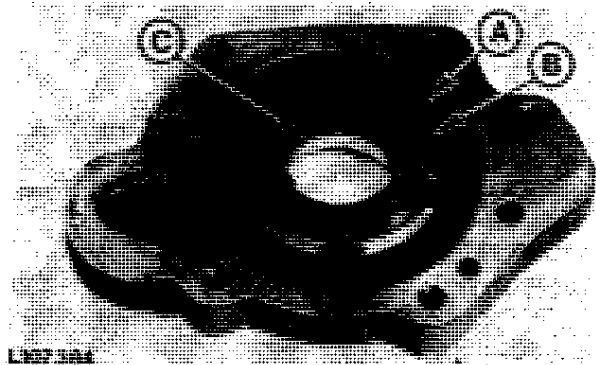
Install ball bearing so that collar (A) faces downwards.



L107383-LA75025AE-051184

INSTALLING GEARS

Chamfered side of gears (A and B) must face downwards. Sealing lips of oil seal (C) must face into housing.

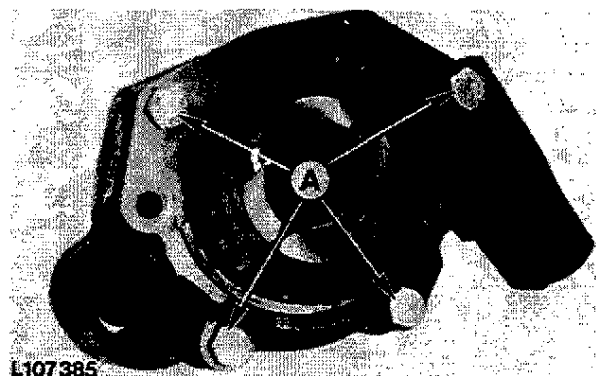


L107384-LA75025AE-051184

JOINING TRANSMISSION OIL PUMP HALVES

Coat sealing faces of both housing halves with LOCTITE No. 573 (L41217).

Tighten cap screws (A) to 55 Nm (40 ft-lb).

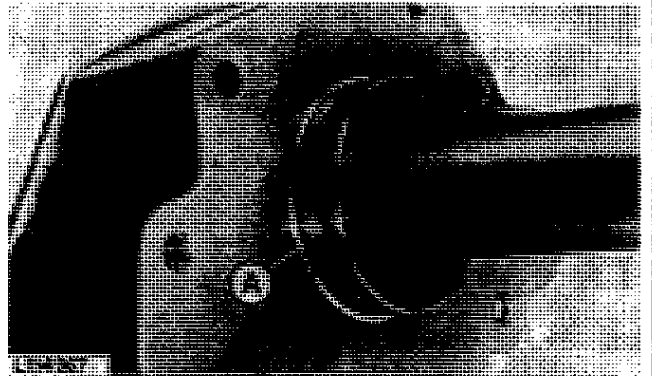


L107385

L107385-LA75025AE-001184

INSTALLING O-RING

Install new O-ring (A) in groove.



L114967-LB25035AE-000886

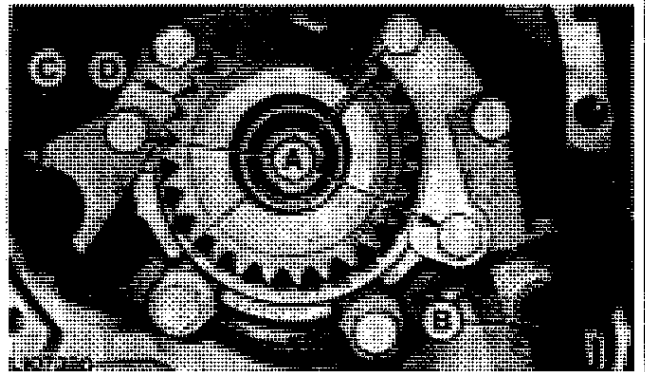
INSTALLING TRANSMISSION OIL PUMP

Install pressure lines (B and C).

Tighten cap screws (A) to 55 Nm (40 ft-lb).

A-Attaching screws
B-Pressure line

C-Pressure line
D-Transmission oil pump



L107380-LB35040AE-010886

FINAL ASSEMBLY

Install PTO clutch, see Group 60.

Install drive for mechanical front-wheel drive.

Install Hi-Lo shift unit, see Group 20.

Install creeper transmission, see Group 25.

Join clutch housing to transmission case, see Section 10, Group 25.

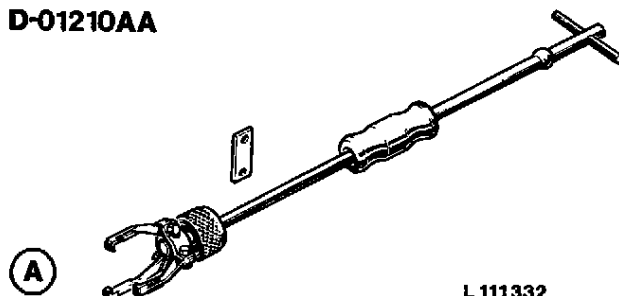
SYNGETR-LB35040EE-010287

Group 45 **COLLAR SHIFT TRANSMISSION AND TRANSMISSION OIL PUMP**

SPECIAL TOOLS

D-01210AA

**A—Removing transmission oil
pump needle bearing**



L 111332

L111332-LB35045AE-010287

SPECIFICATIONS

DIFFERENTIAL DRIVE SHAFT

Total thickness of shim pack to adjust cone point	0.5 mm (0.02 in.)
Max. permissible end play of differential drive shaft before adjusting taper roller bearing preload	0.05 mm (0.002 in.)
Dimension to be added to measured end play of differential drive shaft	0.15 mm (0.006 in.)
Preload of differential drive shaft taper roller bearing	0.15 mm (0.006 in.)
Rolling drag torque of differential drive shaft with specified preload	0.6 to 1.7 Nm (5 to 15 in-lb)

TRANSMISSION DRIVE SHAFT

End play	0.10 to 0.15 mm (0.004 to 0.006 in.)
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COUNTERSHAFT

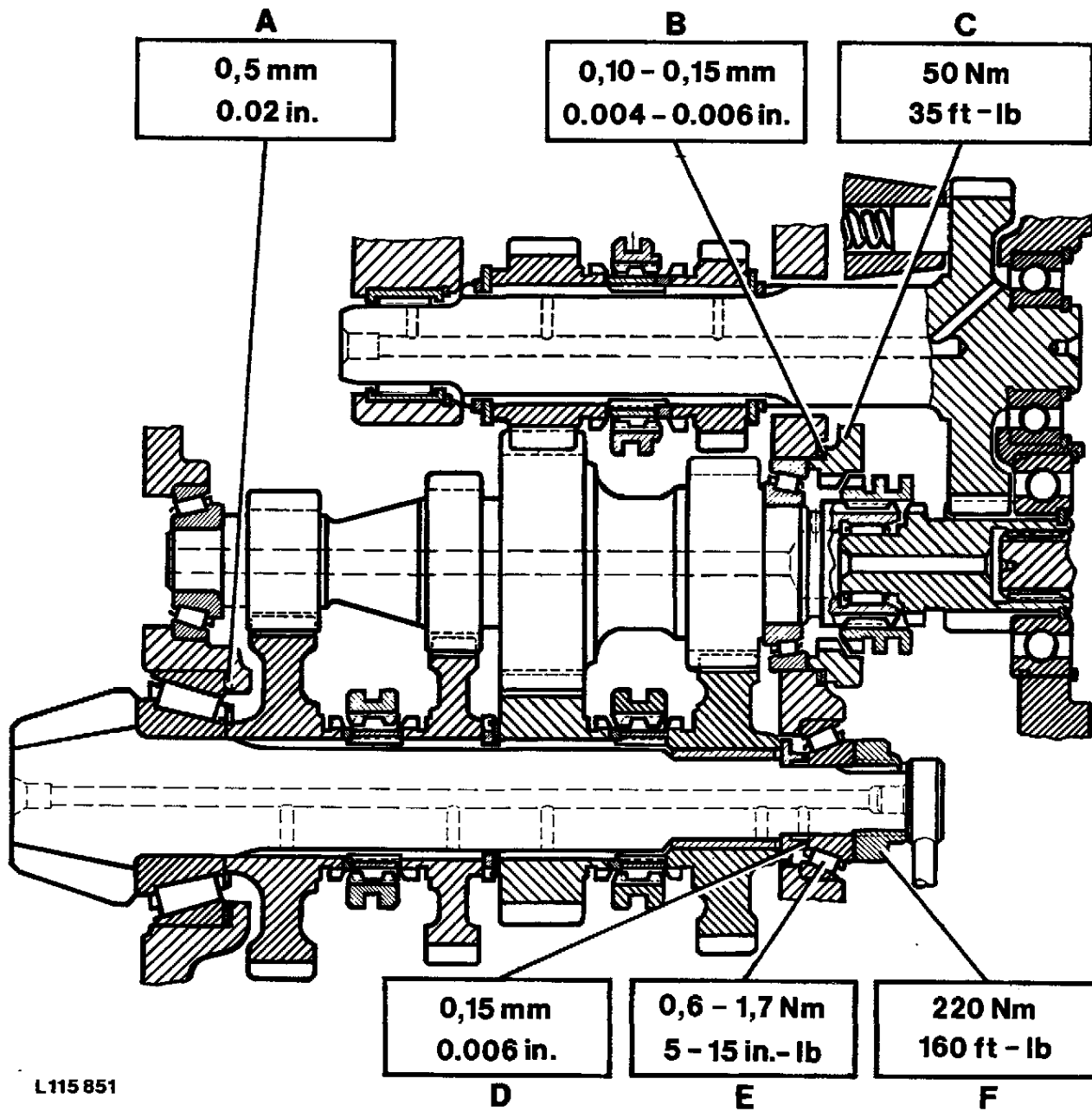
Spring of friction pin – Spring tension at a length of 38.5 mm (1.51 in.)	280 to 350 N (63 to 79 lb)
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TRANSMISSION OIL PUMP

Clearance between gears and sealing surface of carrier and sleeve assembly	0.03 to 0.05 mm (0.001 to 0.002 in.)
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MUFFENGE-LB35045AE-010287

SPECIFICATIONS (Contd.)



L115 851

A—Total thickness of shim pack to adjust cone point
B—End play, differential drive shaft

C—Torque, differential drive shaft bearing quill cap screws
D—Bearing preload, differential drive shaft

E—Rolling drag torque of differential drive shaft
F—Torque, differential drive shaft hex. nut

L115851-LB36045AE-010287

TORQUES FOR HARDWARE

COLLAR SHIFT TRANSMISSION

Hex. nut of differential drive shaft	220 Nm (160 ft-lb)
Bearing quill of transmission drive shaft, cap screws	50 Nm (35 ft-lb)
Front bearing quill to transmission case, cap screws	50 Nm (35 ft-lb)
Transmission oil cup to transmission case, cap screws	30 Nm (23 ft-lb)
Rear lube oil line, cap screws	30 Nm (23 ft-lb)

TRANSMISSION OIL PUMP

Transmission oil pump, attaching cap screws	55 Nm (40 ft-lb)
Transmission oil pump to clutch housing, cap screws	55 Nm (40 ft-lb)

MUFFENGE-LB35045BE-010287

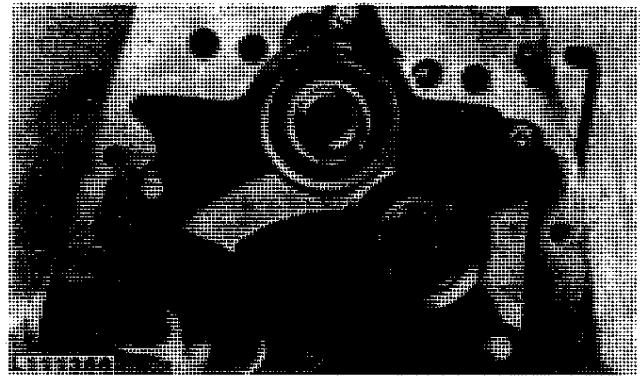
COLLAR SHIFT TRANSMISSION – PREPARATORY WORK

Separate tractor between clutch housing and transmission case, see Section 10, Group 25.
Remove rockshaft, see Section 10, Group 25.
Remove transmission shift linkage, see Group 35.
Remove transmission oil cup and rear lube line.

MUFFENGE-LB35045AE-010888

REMOVING TRANSMISSION COVER

Remove cap screws.



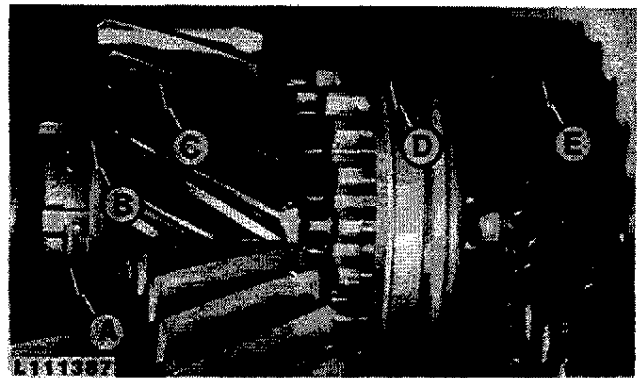
L111386-LB35045AE-010287

REMOVING COUNTERSHAFT

Lift snap ring (A) out of groove.
Rotate lock/thrust washer (B) and slide to the rear.
Also slide gear (C) and shifter sleeve (D) with carrier to the rear until second lock/thrust washer is free.
Rotate third lock/thrust washer in front of gear (E) and remove countershaft together with transmission cover, thereby individual parts slide from the shaft.

A—Snap ring
B—Lock/thrust washer

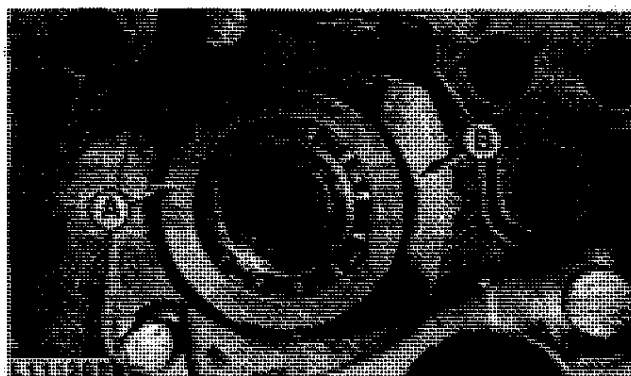
C—Gear, range I
D—Shifter sleeve
E—Gear, reverse range



L111387-LB35045AE-010287

REMOVING TRANSMISSION DRIVE SHAFT BEARING QUILL

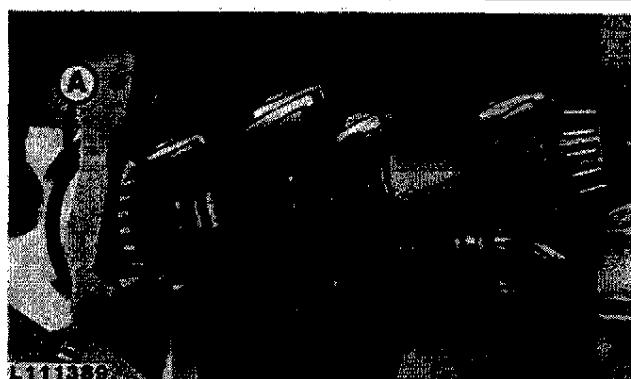
Remove shifter sleeve (A).
Remove cap screws and lift off bearing quill (B).



L111388-LB35045AE-010287

REMOVING TRANSMISSION DRIVE SHAFT

Drive transmission drive shaft to the front until front bearing cup (A) is free.
Lift shaft at an angle out of transmission case.



L111389-LB35045AE-010287

REMOVING DIFFERENTIAL DRIVE SHAFT

Remove differential. See Group 50.

Remove oil line and hex. nut.

Drive differential drive shaft to the rear until against stop and remove bearing cone.

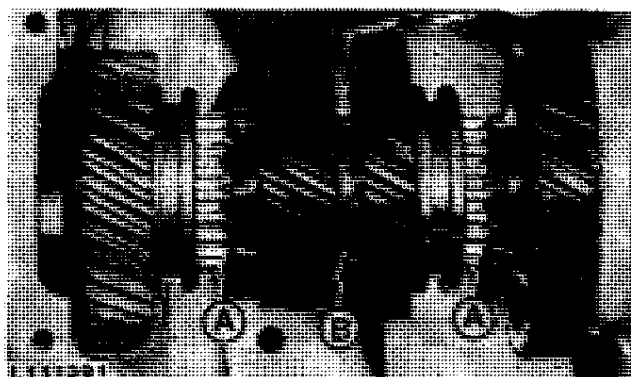


L111390-LB35045AE-010287

Turn the three lock/thrust washers (A and B) to unlock them.

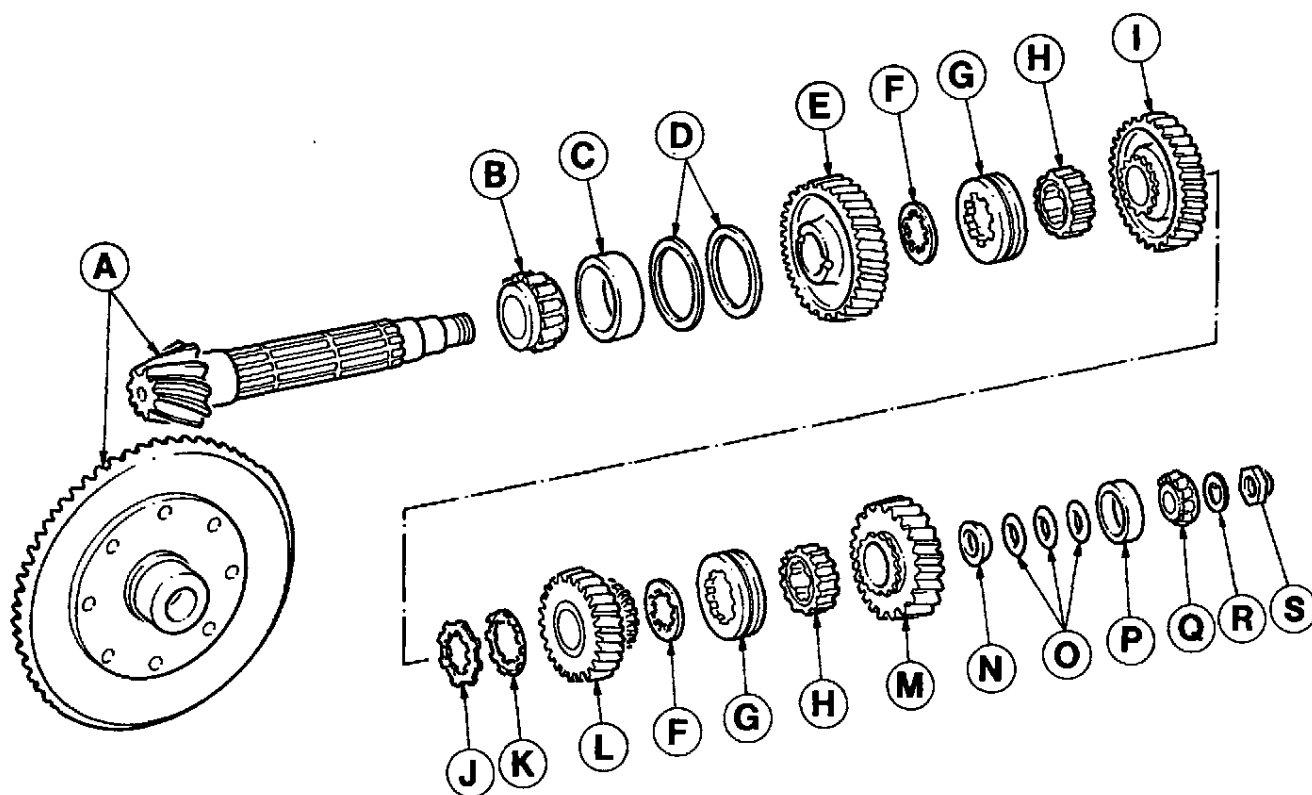
NOTE: The lock/thrust washer (B) is additionally locked by means of a locking tab.

Pull differential drive shaft out to the rear, thereby removing all parts which are now free.



L111391-LB35045AE-010287

DIFFERENTIAL DRIVE SHAFT, EXPLODED VIEW



L 125 236

A—Ring gear, differential housing and drive shaft

B—Taper roller bearing cone

C—Taper roller bearing cup

D—Shims (2 used)

E—1st and 5th speed gear

F—Lock/thrust washers

G—Shifter sleeves

H—Shifter collar

I—2nd and 6th speed gear

J—External splined lock/thrust washer

K—Locking tab washer

L—4th and 8th speed gear

M—3rd and 7th speed gear

N—Spacer washer

O—Shims (use as required)

P—Taper roller bearing cup

Q—Taper roller bearing cone

R—Washer

S—Hex. nut

L125236-LB35045AE-010888

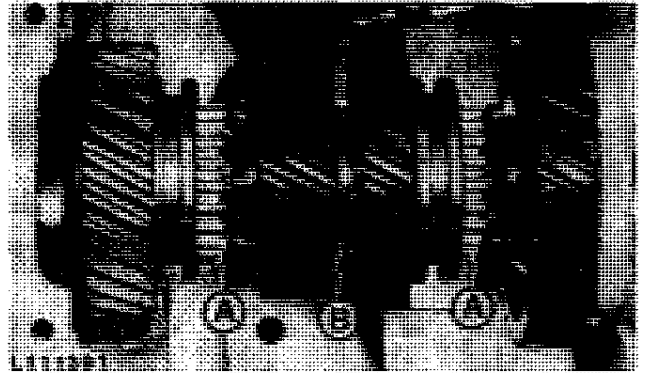
INSTALLING DIFFERENTIAL DRIVE SHAFT

Install rear bearing cup with shim pack (see "Adjusting Cone Point" in transmission case.

Preassemble rear bearing cone on differential drive shaft.

Guide differential drive shaft in transmission case and assemble individual parts one after the other on shaft, see "Differential Drive Shaft, Exploded View".

Rotate (to lock) lock/thrust washers (A and B).



L111391-LB35045AE-010287

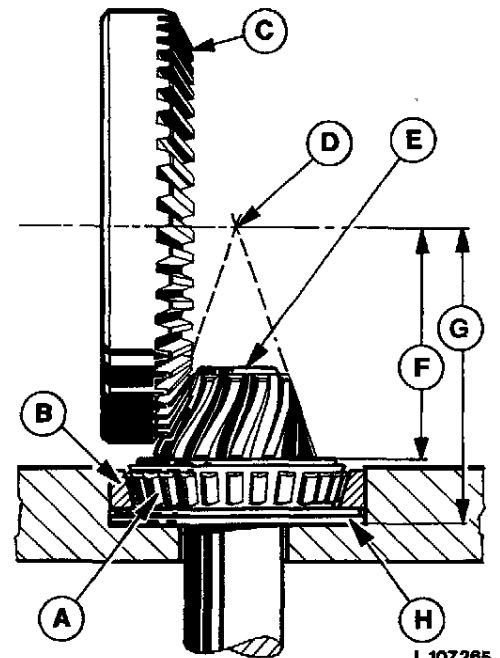
ADJUSTING CONE POINT

To adjust cone point, install a shim pack (H) with a thickness of 0.5 mm (0.02 in.).

NOTE: Ring gear (C) is not yet installed.

A-Taper roller bearing cone
B-Taper roller bearing cup
C-Ring gear
D-Cone point
E-Differential drive shaft pinion

F-Dimension between centerline of ring gear to base of bevel gear
G-Dimension between centerline of ring gear to face of transmission case
H-Shim pack

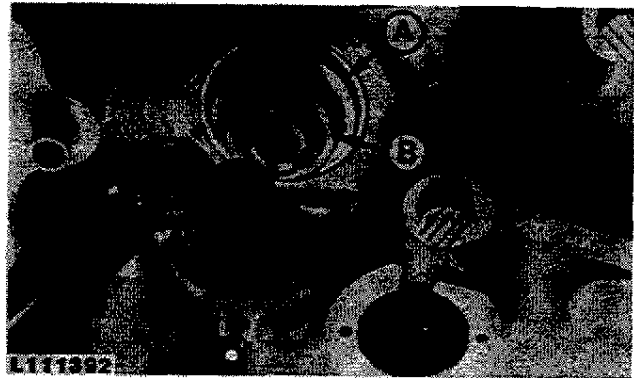


L 107265

L107265-LB35045AE-010287

ADJUSTING DIFFERENTIAL DRIVE SHAFT PRELOAD

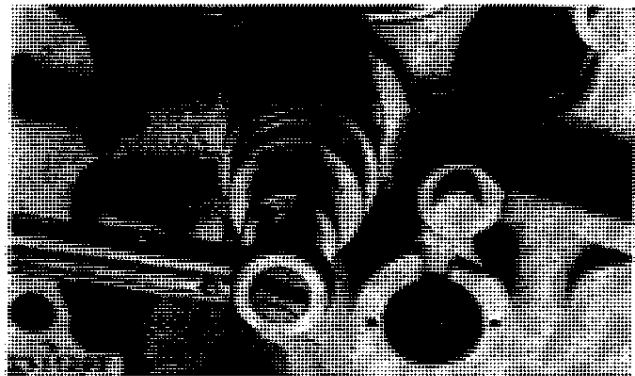
Position sufficient shims so that a maximum end play of 0.05 mm (0.002 in.) can be measured. Install taper roller bearing cone (A) and tighten hex. nut (B) to 220 Nm (160 ft-lb). Add 0.15 mm (0.006 in.) to measured end play and remove shim pack of calculated thickness.



L111392-LB35045AE-010287

TIGHTENING HEX. NUT OF DIFFERENTIAL DRIVE SHAFT

Strike end of shaft several blows with a soft hammer. Recheck torque of hexagon nut. Lock hex. nut. Install differential drive shaft lube line.



L111393-LB35045AE-010287

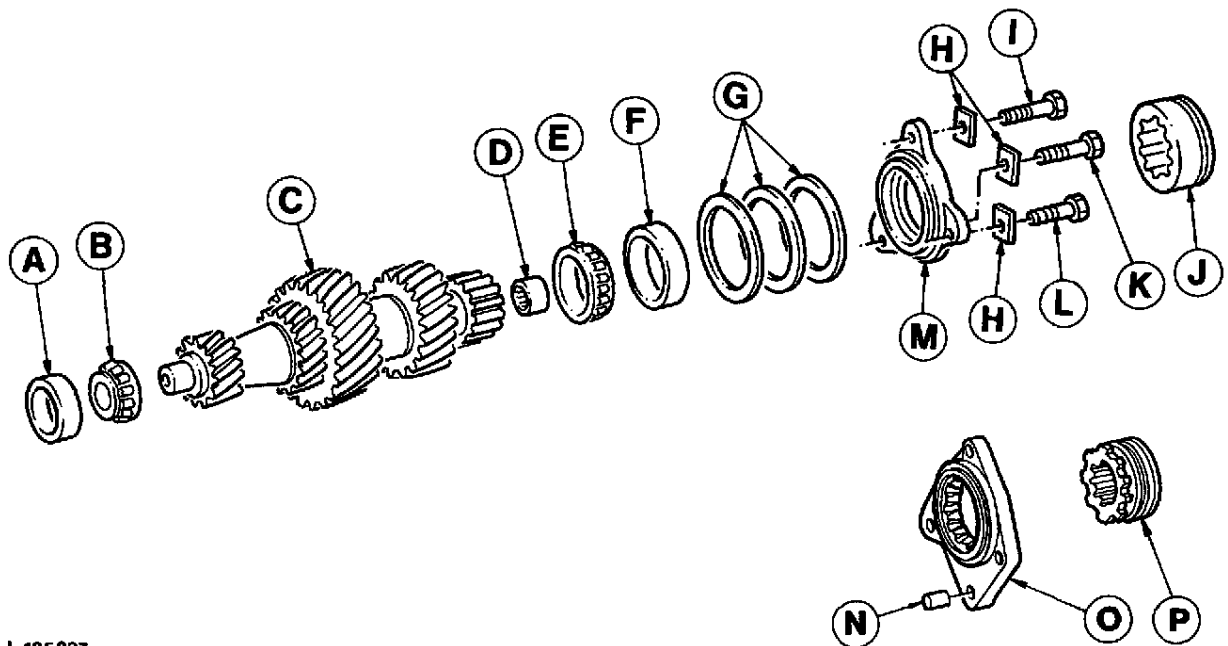
INSTALLING DIFFERENTIAL

Install differential, see Group 50.



L111403-LB35045AE-010287

TRANSMISSION DRIVE SHAFT, EXPLODED VIEW



L 125 237

A-Taper roller bearing cup
B-Taper roller bearing cone
C-Transmission drive shaft
D-Needle bearing
E-Taper roller bearing cone

F-Taper roller bearing cup
G-Shims (use as required)
H-Lock plates
I-Cap screw
J-Shifter sleeve, range II*

K-Cap screw
L-Cap screw
M-Bearing quill*
N-Dowel pin**
O-Bearing quill**
P-Shifter sleeve, range II**

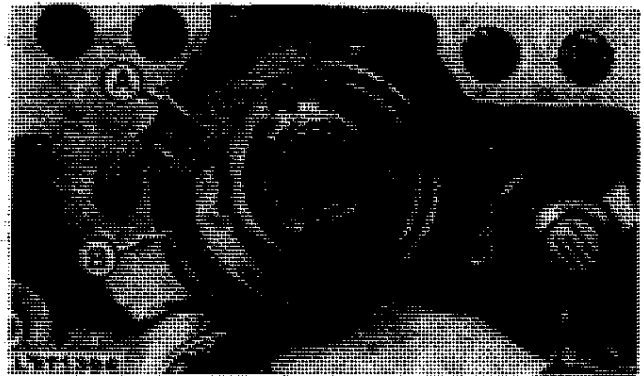
* Tractors with handbrake

** Tractors with parking lock

L125237-LB35045AE-010888

INSTALLING TRANSMISSION DRIVE SHAFT

Position transmission drive shaft and install front bearing cone.
Install bearing quill (A) together with a number of shims (B).



L111364-LB35045AE-010287

Position bracket (A).
Tighten cap screws to 50 Nm (35 ft-lb).

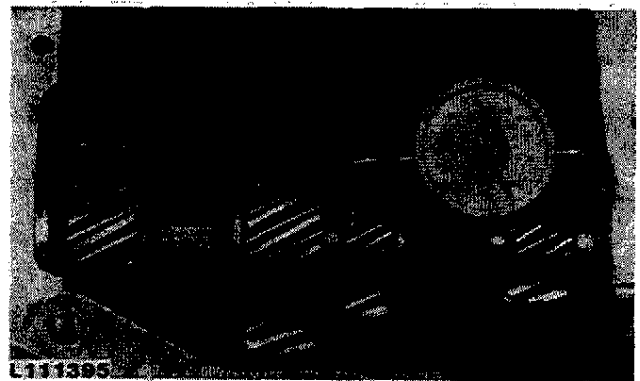
NOTE: Lock cap screws only after end play has been adjusted.



L111364-LB35045AE-010287

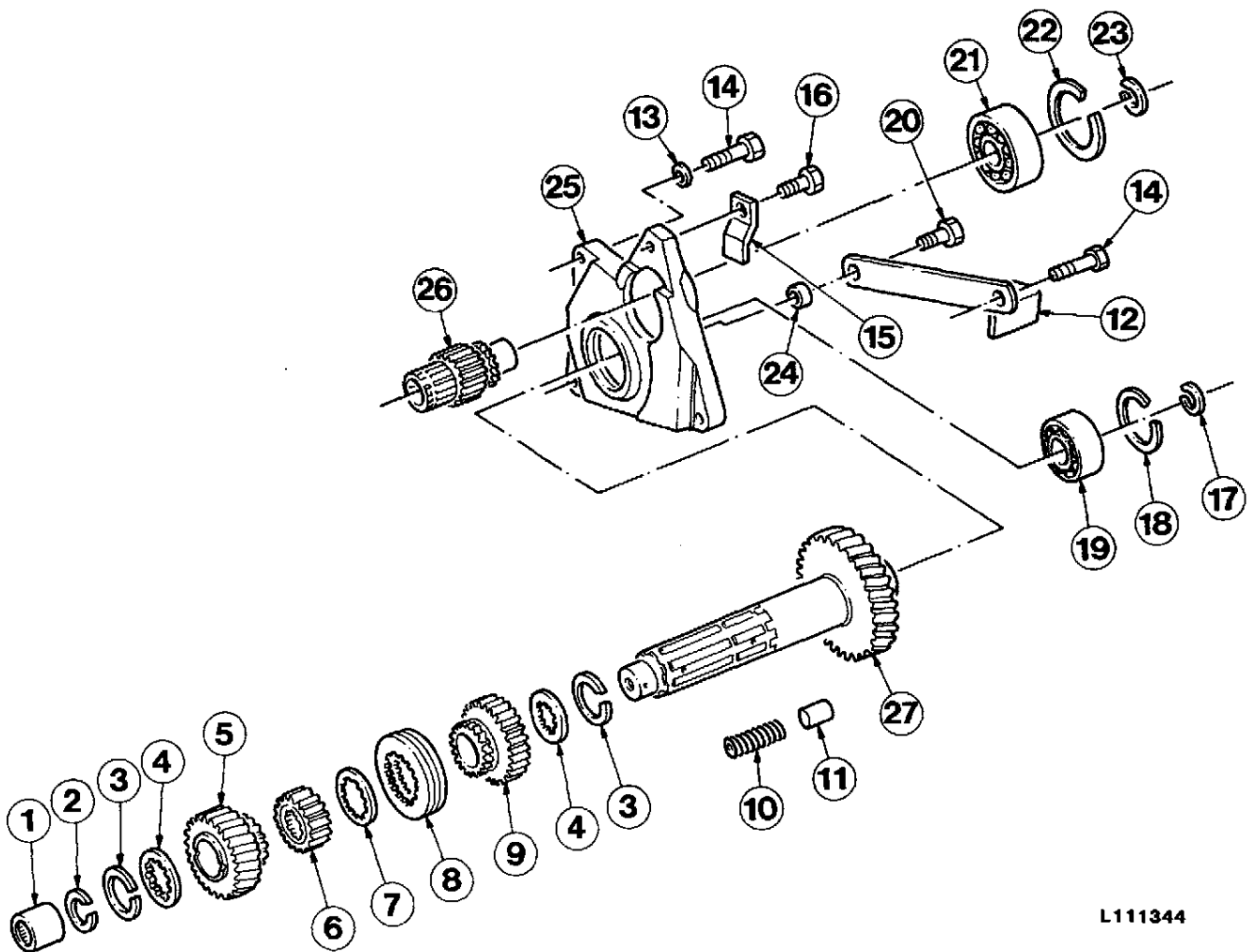
ADJUSTING TRANSMISSION DRIVE SHAFT END PLAY

End play is adjusted by means of shims.
Adjust to obtain an end play of 0.10 to 0.15 mm (0.004 to 0.006 in.).
Having adjusted end play, recheck torque of cap screws (50 Nm; 35 ft-lb) and lock cap screws by bending up locking tabs.



L111395-LB35045AE-010287

COUNTERSHAFT, EXPLODED VIEW



L111344

- 1-Needle bearing
- 2-Snap ring
- 3-Snap rings
- 4-Thrust washers
- 5-Gear, range I
- 6-Shifter collar sleeve
- 7-Lock/thrust washer
- 8-Shift collar
- 9-Gear, reverse range

- 10-Spring (2 used)
- 11-Friction pin (2 used)
- 12-Brecket
- 13-Washer
- 14-Cap screws
- 15-Lock tab
- 16-Cap screw
- 17-Snap ring
- 18-Snap ring

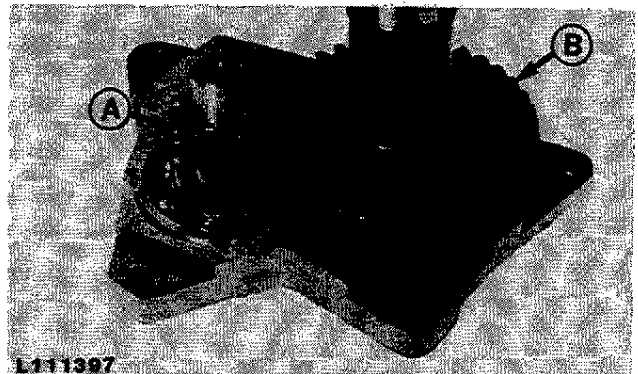
- 19-Ball bearing
- 20-Cap screw
- 21-Ball bearing
- 22-Snap ring
- 23-Snap ring
- 24-Spacer bushing
- 25-Front bearing cover
- 26-Transmission drive shaft gear
- 27-Countershaft

L111344-LB35045AE-010287

REPLACING COUNTERSHAFT BALL BEARING

Remove snap rings and replace bearing.

NOTE: Before removing countershaft (B), first remove gear (A) of transmission drive shaft.



L111397

L111397-LB35045AE-010287

INSTALLING COUNTERSHAFT

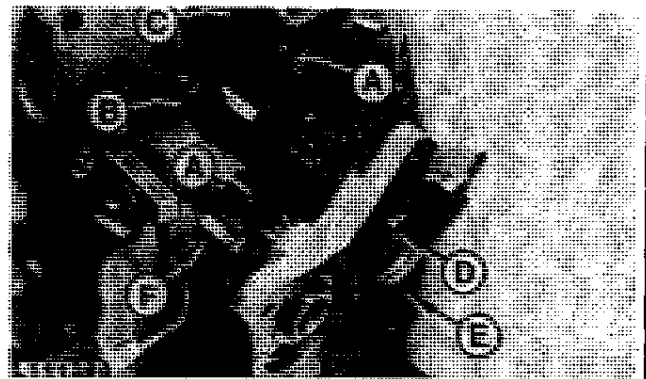
Insert friction pin (A) with spring.

Position range II shifter collar (B) and shifter fork (C).

Guide countershaft (D) into transmission case and install individual parts one after the other (see "Countershaft, Exploded View").

A-Friction pin
B-Shifter collar
C-Shifter fork

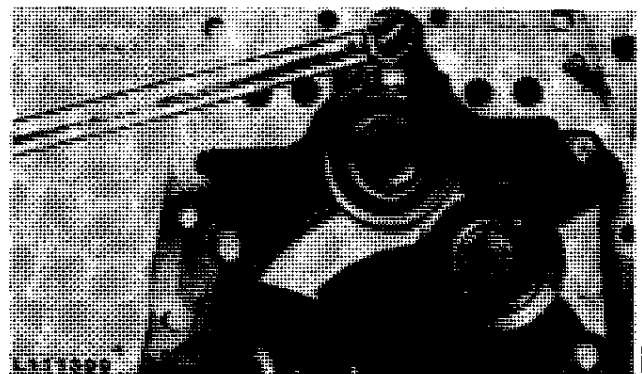
D-Countershaft
E-Transmission cover
F-Pin



L111398-LB35045AE-010287

ATTACHING TRANSMISSION COVER

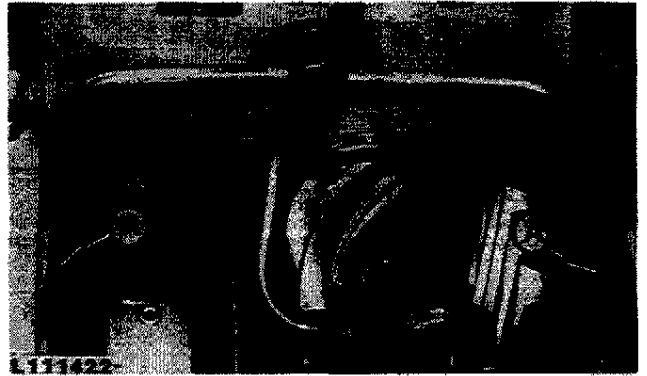
Tighten cap screws to 50 Nm (35 ft-lb).



L111399-LB35045AE-010287

INSTALLING TRANSMISSION OIL CUP

Install rear oil line so that the ends (A) extend into final drives. Install transmission oil cup.



L111422-LB35045AE-010287

FINAL ASSEMBLY

Install transmission shift linkage, see Group 35.
Install rockshaft, see Section 10, Group 25.
Join clutch housing to transmission case, see Section 10, Group 25.

MUFFENGE-LB35045DE-010287

TRANSMISSION OIL PUMP – PREPARATORY WORK

Separate clutch housing from transmission case, see Section 10, Group 25.

Remove Hi-Lo shift unit, see Group 20.

Remove creeper transmission, see Group 25.

Remove PTO drive gear, see Group 60.

MUFFENGE-LB35045EE-010287

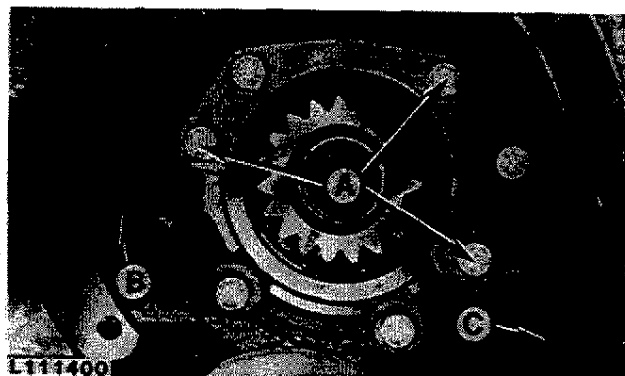
REMOVING TRANSMISSION OIL PUMP

Remove attaching screws (A).

Remove lines (B and C).

Remove transmission oil pump.

A-Attaching screws
B-Line
C-Line



L111400-LB35045AE-010287

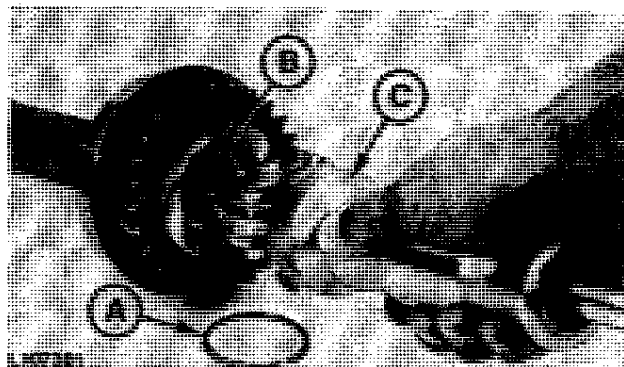
REPLACING NEEDLE BEARING

Remove snap ring (A).

Remove needle bearing (B) using puller D-01210AA (C).

Lips of oil seal behind needle bearing must face towards the front when being installed.

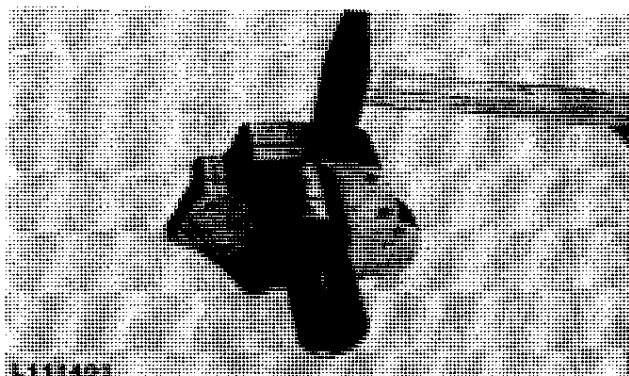
NOTE: From Tractor Serial No. 662 748L, press in cap behind seal ring with rounded edges against shoulder of shaft bore.



L107381-LB35045AE-010888

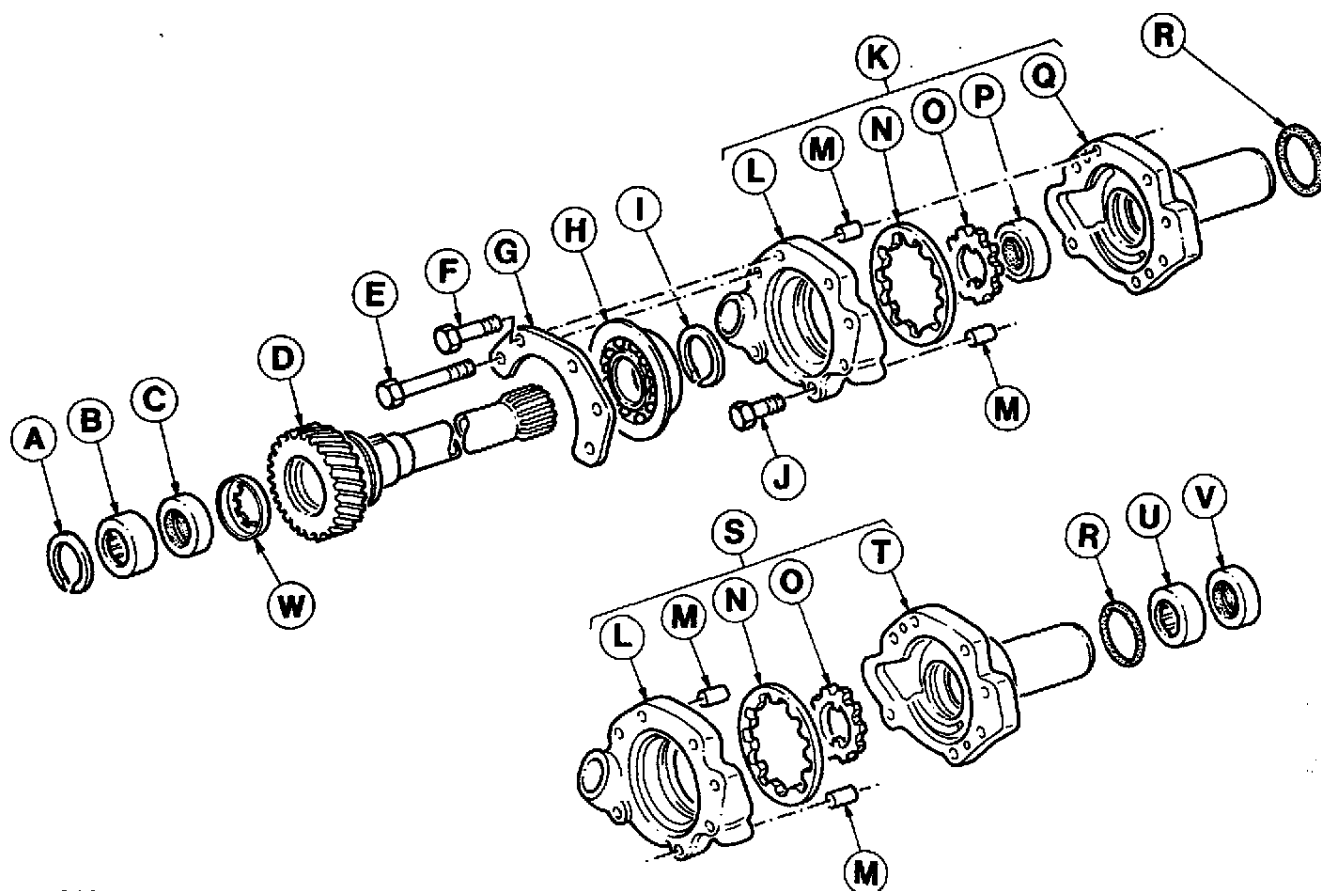
SEPARATING PUMP HOUSING

Break sealant between pump halves by applying light blows to circumference of pump housing.



L111401-LB35045AE-010888

TRANSMISSION OIL PUMP, EXPLODED VIEW



L120601

A-Snap ring
B-Needle bearing
C-Oil seal
D-Hollow drive shaft
E-Cap screw (3 used)
F-Cap screw (2 used)
G-Bracket
H-Ball bearing

I-Snap ring
J-Cap screw (2 used)
K-Transmission oil pump
L-Housing
M-Dowel pin (2 used)
N-Internal splined gear

O-Spur gear
P-Oil seal
Q-Carrier and sleeve assy.
R-O-ring
S-Transmission oil pump*
T-Carrier and sleeve assy.*
U-Needle bearing*
V-Oil seal*
W-Cap**

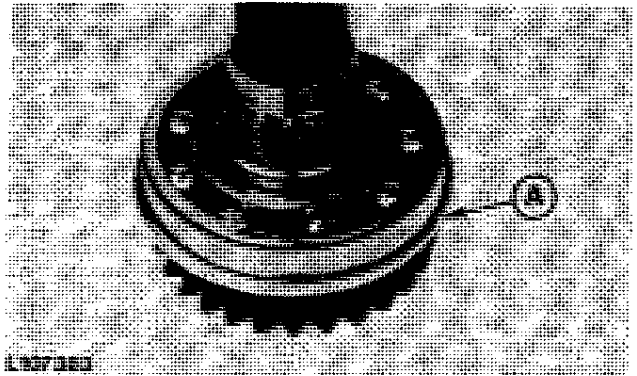
* On tractors with continuous-running PTO only

** From Tractor Serial No. 662 748L

L120601-LB35045AE-010888

ASSEMBLING HOLLOW DRIVE SHAFT

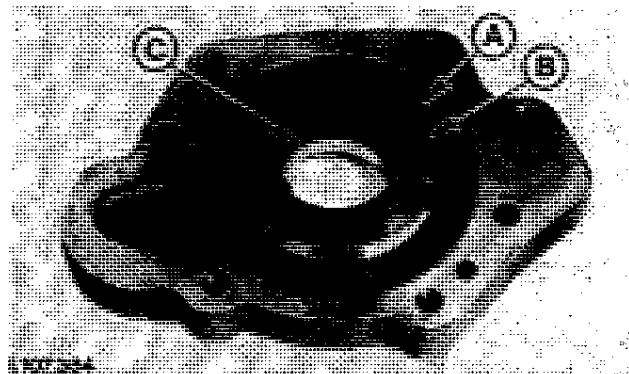
Install ball bearing so that collar (A) faces downwards.



L107383-LA75025AE-051184

INSTALLING GEARS

Chamfered side of gears (A and B) must face downwards. Sealing lips of oil seal (C) must face into housing.



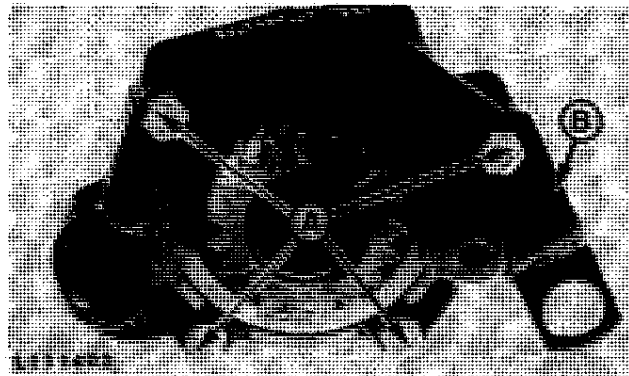
L107384-LA75025AE-051184

JOINING TRANSMISSION OIL PUMP HALVES

Coat sealing faces of both housing halves with LOCTITE No. 573 (L41217).

Tighten cap screws (A) to 55 Nm (40 ft-lb).

NOTE: Bracket (B) must be loose when installing oil line.

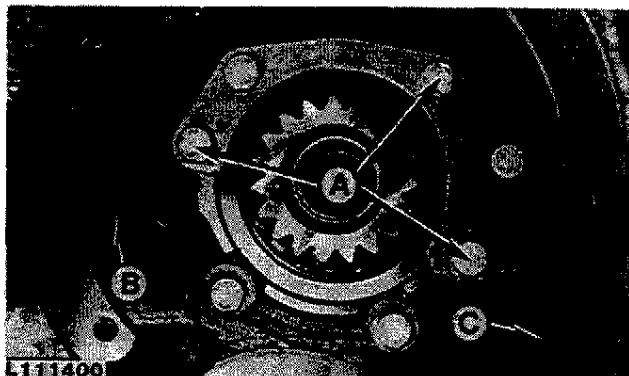


L111402-LB35045AE-010287

INSTALLING TRANSMISSION OIL PUMP

Install pressure lines (B and C).

Tighten cap screws (A) to 55 Nm (40 ft-lb).



L111400-LB35045AE-010888

Collar Shift Transmission and Transmission Oil Pump

FINAL ASSEMBLY

Install PTO drive gear, see Group 60.

Install Hi-Lo shift unit, see Group 20.

Install creeper transmission, see Group 25.

Join clutch housing to transmission case, see Section 10, Group 25.

MUFFENGE-LB35045FE-010287

SPECIFICATIONS

Max. permissible axial play of differential before adjusting taper rolling bearing preload	0.05 mm (0.002 in.)
Value to be added to differential axial play	0.08 to 0.13 mm (0.003 to 0.005 in.)
Taper roller bearing preload	0.05 to 0.13 mm (0.002 to 0.005 in.)
Backlash between ring gear and differential drive shaft pinion	0.30 mm (0.012 in.)
Thickness of bevel gear thrust washer	1.95 to 2.05 mm (0.077 to 0.081 in.)
Thickness of bevel pinion thrust washer	0.95 to 1.05 mm (0.037 to 0.041 in.)

IMPORTANT: The backlash of 0.30 mm (0.012 in.) should be adjusted as accurately as possible. At no point of ring gear circumference should the backlash be less than 0.22 mm (0.009 in.) or more than 0.38 mm (0.015 in.).

DIFFER-LB35050AE-010287

TORQUES FOR HARDWARE

Differential housing cover to differential housing, cap screws	50 Nm (35 ft-lb)
Differential bearing quill to transmission case, cap screws	50 Nm (35 ft-lb)
Differential lock, operating lever to shaft, cap screw	50 Nm (35 ft-lb)

DIFFER-LA75030BE-180285

PREPARATORY WORK

Remove rockshaft and both final drives, see Section 10, Group 25.

Remove transmission oil cup.

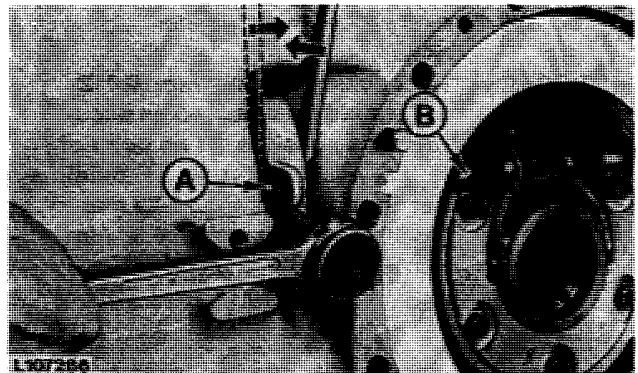
Remove handbrake, see Section 60, Group 30.

Remove rockshaft load control arm, see Section 70, Group 15.

DIFFER-LB35050AE-010888

REMOVING SHIFTER SHAFT LEVER

Gradually move shifter shaft (B) to the rear by shifting lever (A) until lever can be removed.



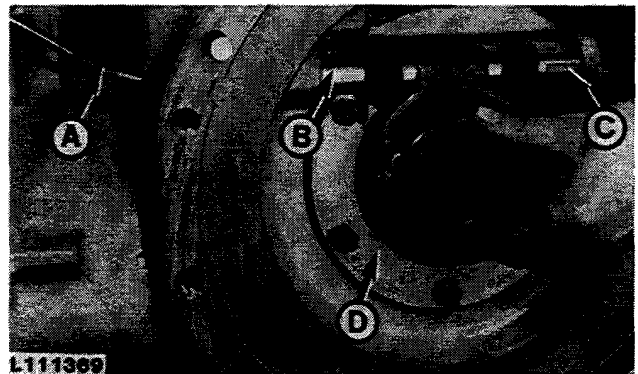
L107286-LA75030AE-001184

REMOVING DIFFERENTIAL LOCK

Drive shifter shaft (B) to the rear with an angled round steel rod (A). Turn shifter shaft in order to remove Woodruff keys (C). Remove bearing quill (D) on both sides.

A—Round steel rod
B—Shifter shaft

C—Woodruff key
D—Bearing quill



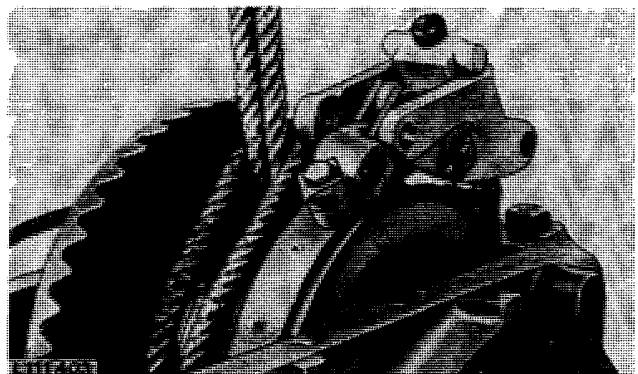
L111369-LB35050AE-010287

REMOVING DIFFERENTIAL

Remove ring gear cover.

Remove taper roller bearing cone of ring gear side.

Remove differential assembly complete with handbrake band.



L111403-LB35050AE-010287

CHECKING THRUST WASHERS

Thickness of a thrust washer (B):

1.95 to 2.05 mm (0.077 to 0.081 in.)

Thickness of new thrust washers (D):

0.95 to 1.05 mm (0.037 to 0.041 in.)

A—Differential housing cover

B—Thrust washer

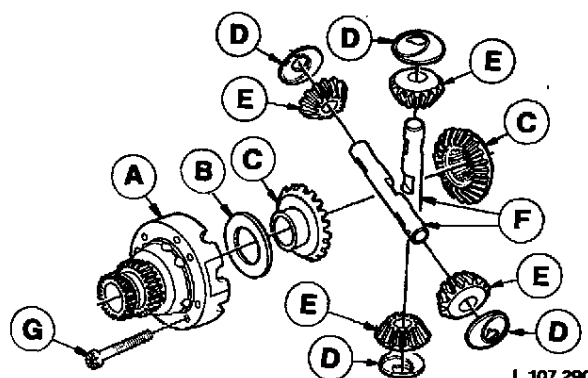
C—Bevel gears

D—Thrust washers

E—Bevel pinions

F—Bevel pinion shafts

G—Cap screw (8 used)



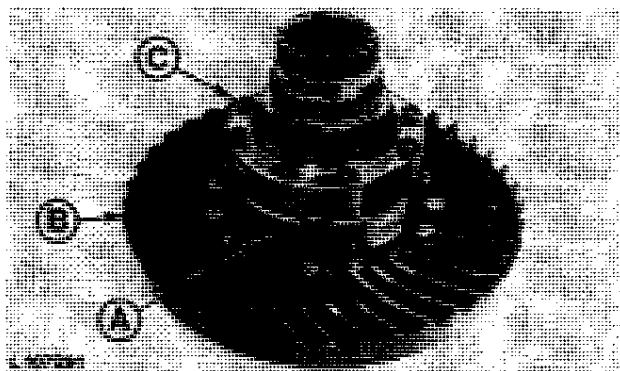
L107290-LB35050AE-010287

ASSEMBLING DIFFERENTIAL HOUSING

Heat new ring gear (B) and rivet crosswise to differential housing (A).

Tighten screws (C) to 50 Nm (35 ft-lb).

NOTE: The number of teeth on ring gear and differential drive shaft are stamped on transmission case serial number plate.



L107291-LB35050AE-010287

INSTALLING DIFFERENTIAL

Install differential complete with handbrake band and brake disk.

Install taper roller bearing cone of ring gear side.



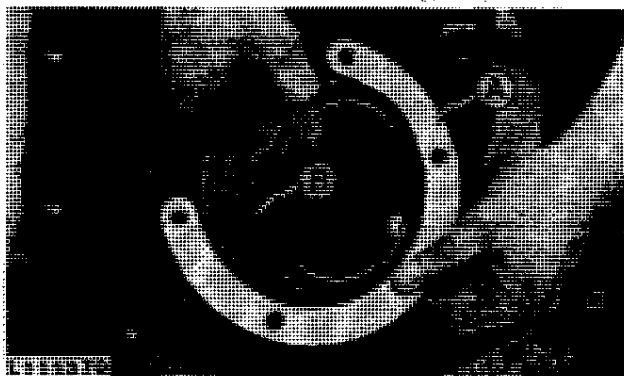
L111403-LB35050BE-010287

INSTALLING BEARING QUILLS

Install both bearing quills.

Place a shim pack (A) of approximately 2 mm (0.08 in.) thickness underneath right hand bearing quill (B) to produce a measurable axial play.

NOTE: Axial play must not exceed 0.05 mm (0.002 in.).

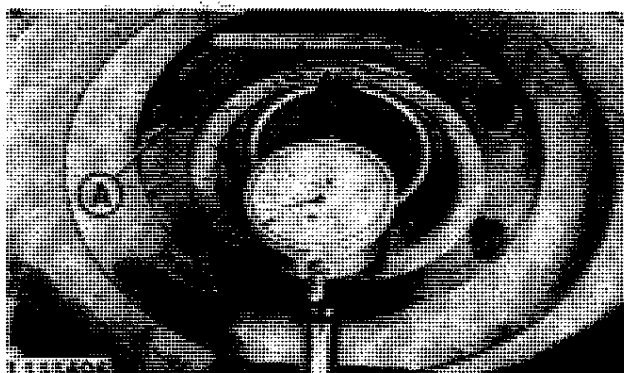


L111370-LB35050AE-010287

Add between 0.08 to 0.13 mm (0.003 to 0.005 in.) to measured axial play and remove shim pack with the calculated thickness.

This should result in a preload of 0.05 to 0.13 mm (0.002 to 0.005 in.).

Tighten cap screws (A) to 50 Nm (35 ft-lb).



L111404-LB35050AE-010287

ADJUSTING BACKLASH

Check backlash at several points of circumference. Backlash should be 0.30 mm (0.012 in.).

If more than 0.38 mm (0.015 in.), transfer a certain number of shims from underneath right-hand to underneath left-hand bearing quill.

Backlash must not be less than 0.22 mm (0.009 in.).



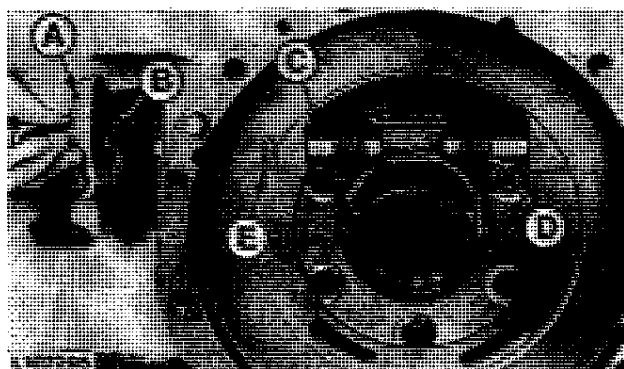
L107294-LB35050AE-010287

INSTALLING DIFFERENTIAL LOCK

Coat shifter shaft (C) with Molykote grease before installation.

When driving in shifter shaft (C), install Woodruff key (D) and lever (A) with key (B).

A—Lever
B—Key
C—Shifter shaft
D—Woodruff key
E—O-ring



Drive in shifter shaft until it bottoms.

Apply sealing compound to sealing cover and insert into bore of transmission housing.

L107295-LA75030AE-000285

FINAL ASSEMBLY

Install rockshaft load control arm, see Section 70, Group 15.

Install handbrake, see Section 60, Group 30.

Install ring gear cover.

Install transmission oil cup.

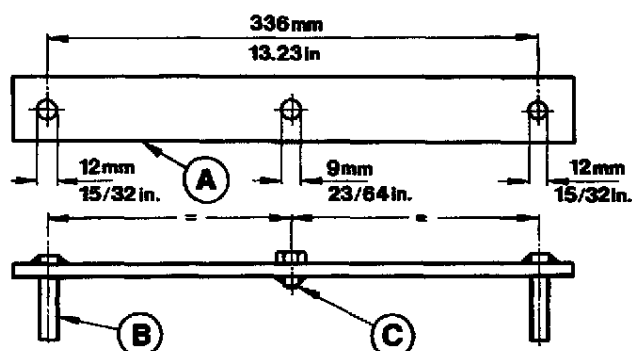
Install rockshaft and both final drives, see Section 10, Group 25.

DIFFER-LB35050BE-010888

SPECIAL TOOLS (Self-Manufacture)

Turning Device

- A—Flat steel 40 x 10 x 380 mm
(1.5 x 0.4 x 15 in.)
- B—Round steel 50 mm x 12 mm diameter
(2 in. x 0.47 in. diameter)
- C—Cap screw M8 x 15



L 115990

L115990-LB35055AE-010287

SPECIFICATIONS

STANDARD TYPE

Dimensions of New Parts

Dia. of a planet pinion bore	46.42 to 46.46 mm (1.827 to 1.829 in.)
Width of a planet pinion	44.52 to 44.78 mm (1.753 to 1.763 in.)
Dia. of planet pinion bearing rollers (measured at center)	5.54 to 5.56 mm (0.218 to 0.219 in.)
Number of needle bearings for each planet pinion	23
Thickness of a thrust washer	0.88 mm (0.036 in.)
Dia. of planet pinion carrier bores for planet pinion shafts	35.30 to 35.35 mm (1.390 to 1.392 in.)
O.D. of planet pinion shafts	35.28 to 35.30 mm (1.389 to 1.390 in.)
Value to be added to measured rolling drag torque of final drive housing before tightening special twelve-point screw	8 to 12.5 Nm (6 to 9 ft-lb)

ENDANTR-LB35055AE-010888

SPECIFICATIONS (Contd.)**HEAVY-DUTY TYPE****Dimensions of New Parts**

Dia. of a planet pinion bore	46.99 to 47.03 mm (1.850 to 1.851 in.)
Width of a planet pinion	56.77 to 57.03 mm (2.235 to 2.246 in.)
Dia. of planet pinion bearing rollers (measured at center)	6.34 to 6.35 mm (0.249 to 0.250 in.)
Number of needle bearings for each planet pinion	40
Thickness of a thrust washer	1.0 mm (0.04 in.)
Dia. of planet pinion carrier bores for planet pinion shafts	34.30 to 34.35 mm (1.350 to 1.352 in.)
O.D. of planet pinion shafts	34.27 to 34.28 mm (1.349 to 1.350 in.)
Value to be added to measured rolling drag torque of final drive housing before tightening special twelve-point screw	10 to 13.5 Nm (7.5 to 10 ft-lb)

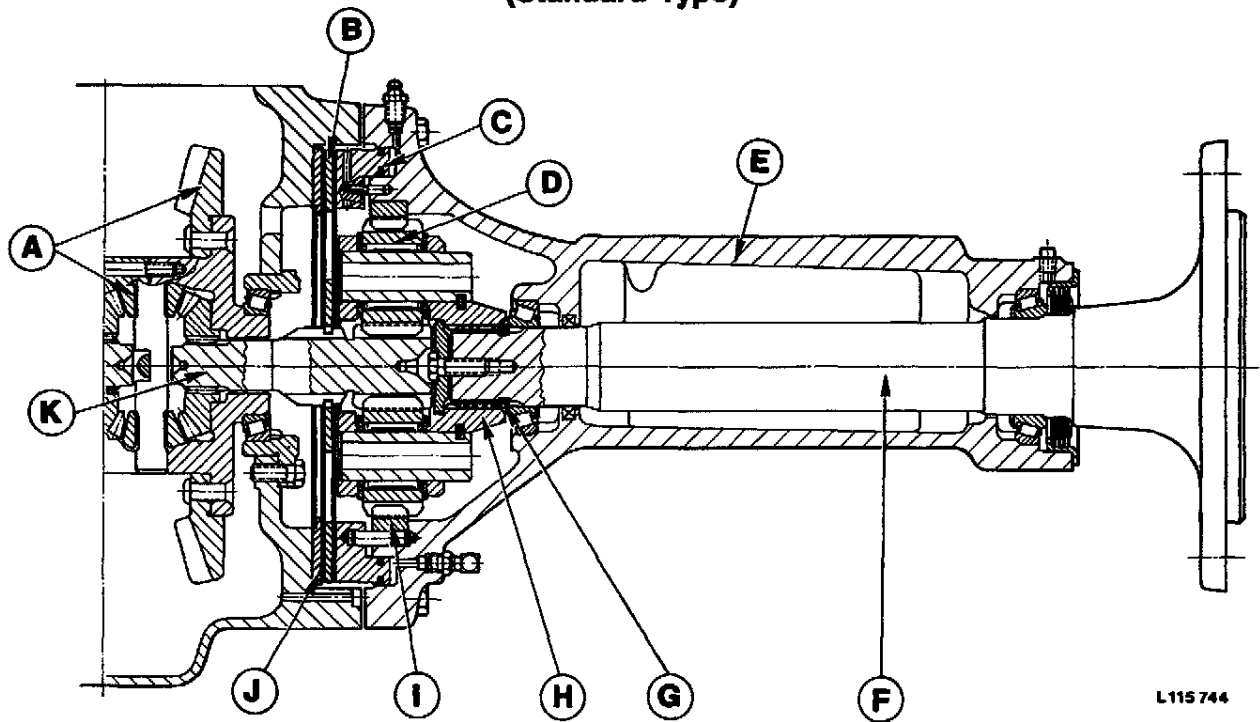
ENDANTR-LB35055BE-010287

TORQUES FOR HARDWARE

Final drives to transmission case, cap screws	120 Nm (85 ft-lb)
--	-------------------

ENDANTR-LB35055CE-010287

**RIGHT-HAND FINAL DRIVE ASSEMBLY, SECTIONAL VIEW
(Standard Type)**



L115 744

A-Differential
B-Brake disk
C-Brake pressure ring

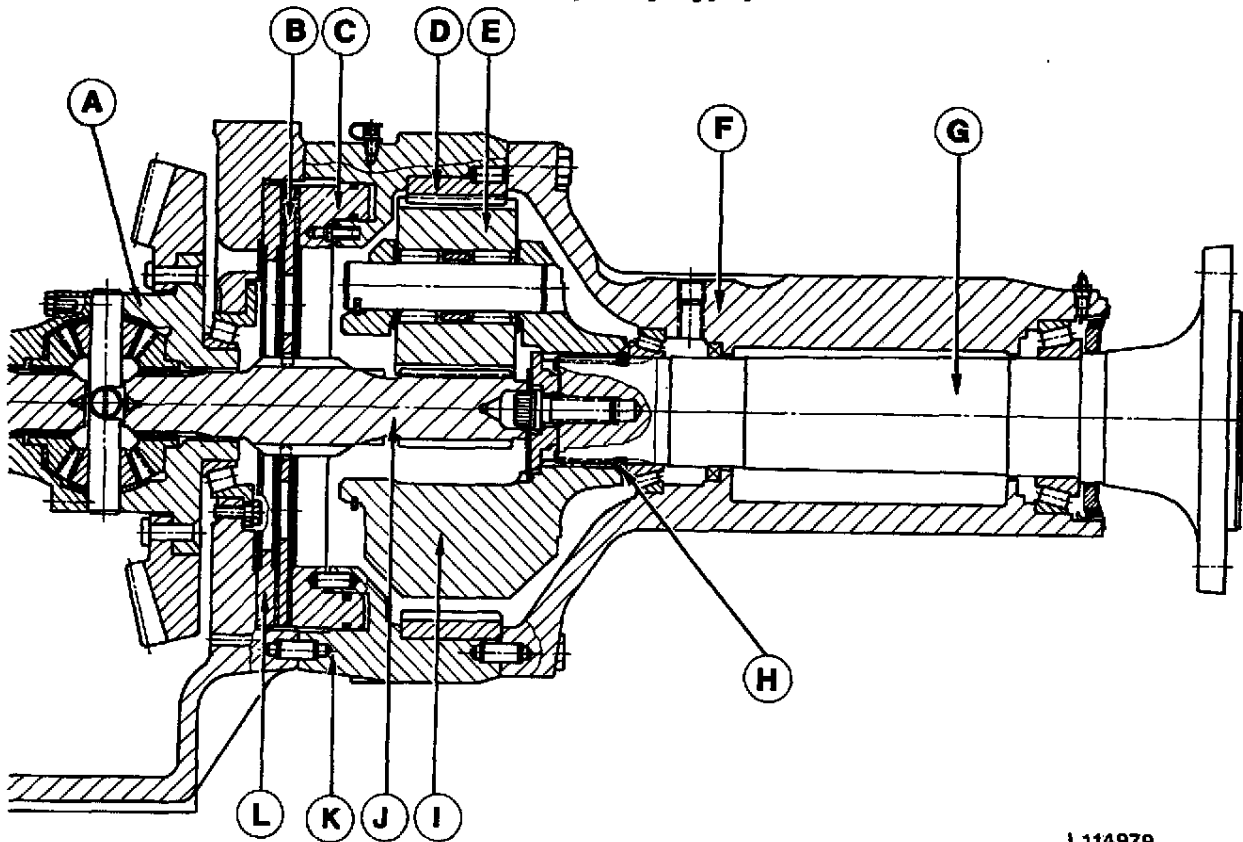
D-Planet pinion (4 used)
E-Final drive housing
F-Rear axle

G-Snap ring
H-Planet pinion carrier
I-Ring gear

J-Brake ring
K-Final drive shaft
(sun gear)

L115744-LB35055AE-010287

**RIGHT-HAND FINAL DRIVE ASSEMBLY, SECTIONAL VIEW
(Heavy-Duty Type)**



L114979

A-Differential
B-Brake disk
C-Brake pressure ring

D-Ring gear
E-Planet pinion
F-Final drive housing

G-Rear axle
H-Snap ring
I-Planet pinion carrier

J-Final drive shaft
K-Brake housing
L-Brake ring

L114979-LB35055AE-010287

REMOVING FINAL DRIVES

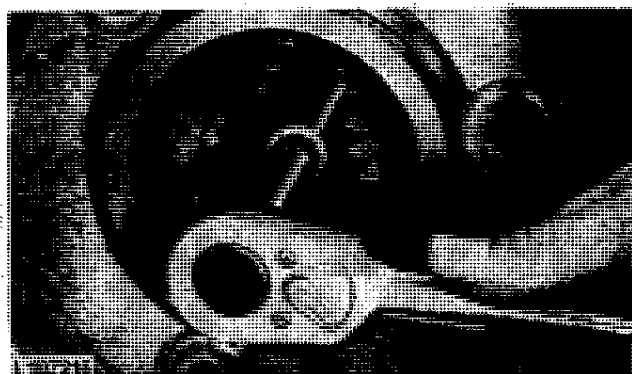
Refer to Section 10, Group 25 for removal of final drive assemblies.

ENDANTR-LA75035CE-091184

REMOVING PLANET PINION CARRIER

Remove lock plate.

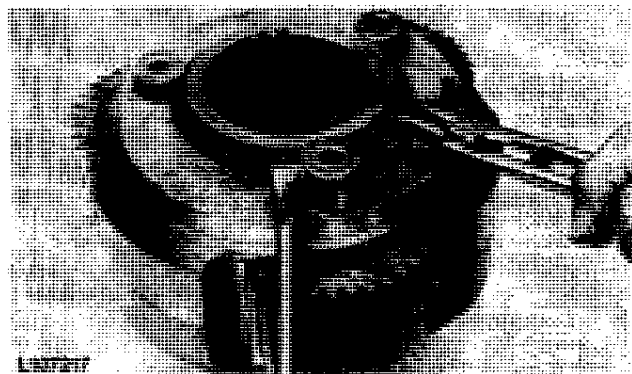
Remove special twelve-point screw.



L107216-LA75035AE-091184

REMOVING SNAP RING FROM PLANET PINION CARRIER

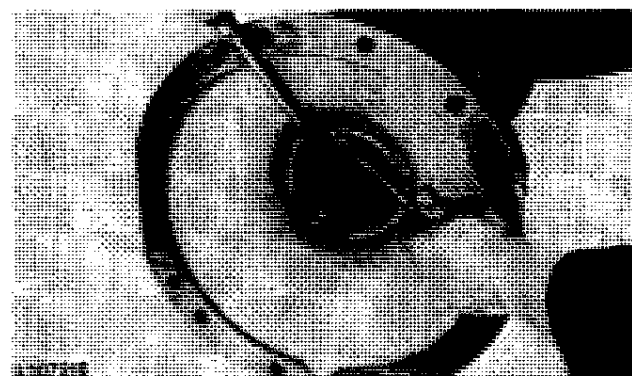
With the aid of the snap ring, pull planet pinion shafts out of planetary carrier until snap ring can be removed.



L107217-LA75035AE-091184

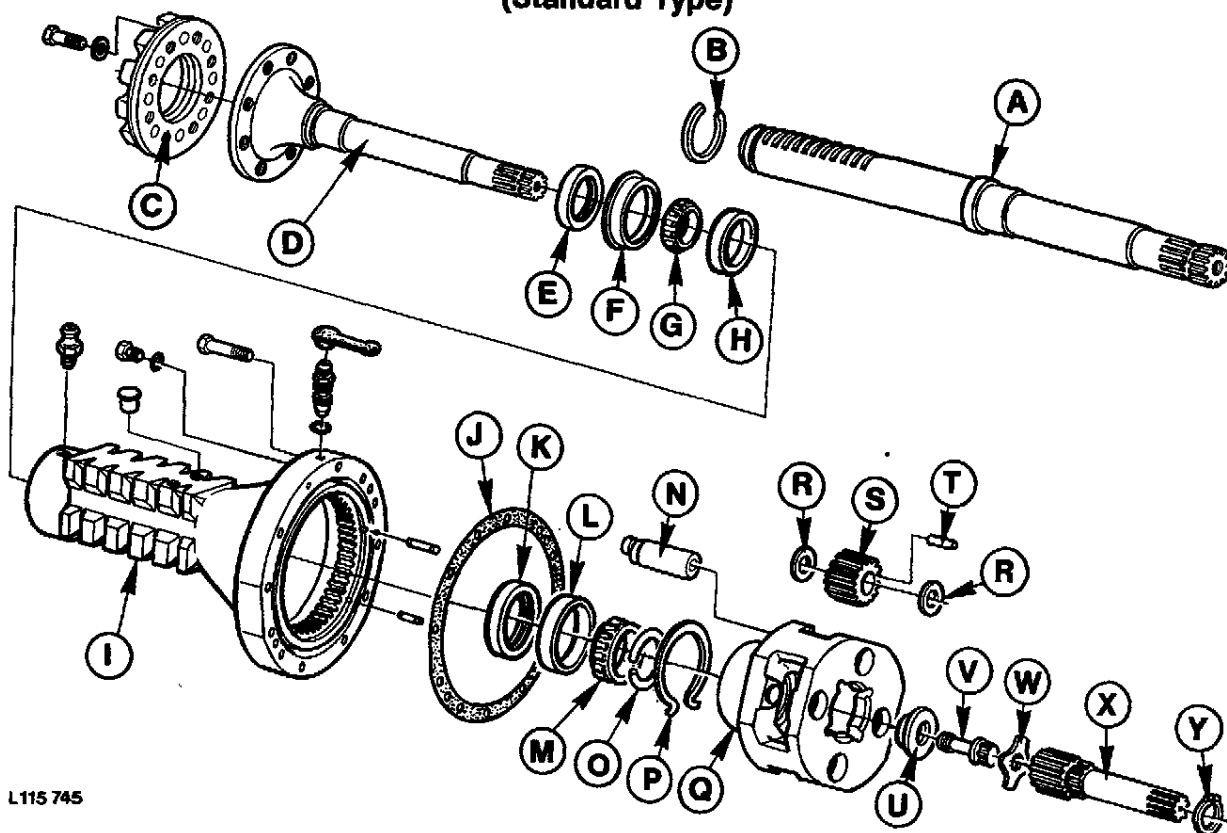
REMOVING REAR AXLE

Remove snap ring and drive rear axle out of final drive housing.



L107218-LA75035AE-091184

FINAL DRIVE ASSEMBLY, EXPLODED VIEW (Standard Type)



L115 745

A-Rack-and-pinion axle
B-Snap ring
C-Hub for tread width adjustment
D-Rear axle
E-Oil seal
F-Back-up ring for oil seal
G-Taper roller bearing cone
H-Taper roller bearing cup
I-Final drive housing

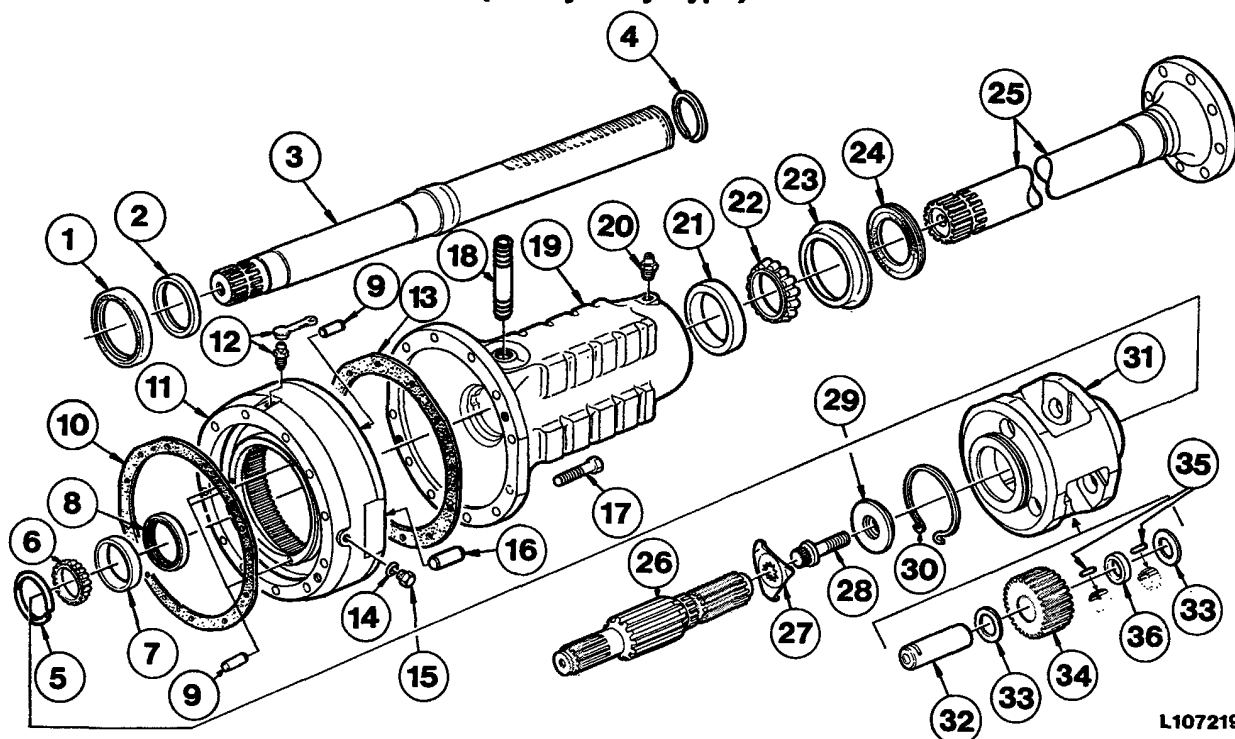
J-Gasket
K-Oil seal
L-Taper roller bearing cup
M-Taper roller bearing cone
N-Planet pinion shaft (4 used)
O-Snap ring
P-Snap ring
Q-Planet pinion carrier
R-Thrust washer (8 used)

S-Planet pinion (4 used)
T-Needle bearings (92 used)
U-Washer
V-Special twelve-point screw
W-Locking plate
X-Final drive shaft
Y-Snap ring*

* Up to Tractor Serial No. 615 528L

L115745-LB35055AE-010888

FINAL DRIVE ASSEMBLY, EXPLODED VIEW (Heavy-Duty Type)



L107219

- 1—Oil seal
- 2—Spacer
- 3—Rack-and-pinion axle
- 4—Snap ring
- 5—Snap ring
- 6—Taper roller bearing cone
- 7—Taper roller bearing cup
- 8—Oil seal
- 9—Dowel pins
- 10—Gasket
- 11—Brake housing
- 12—Bleed screw

- 13—Gasket
- 14—O-ring
- 15—Plug
- 16—Dowel pin
- 17—Cap screws
- 18—Stud
- 19—Final drive housing
- 20—Grease fitting
- 21—Taper roller bearing cup
- 22—Taper roller bearing cone
- 23—Back-up ring
- 24—Oil seal

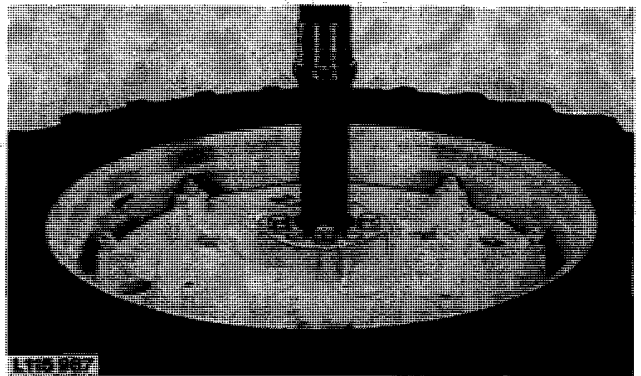
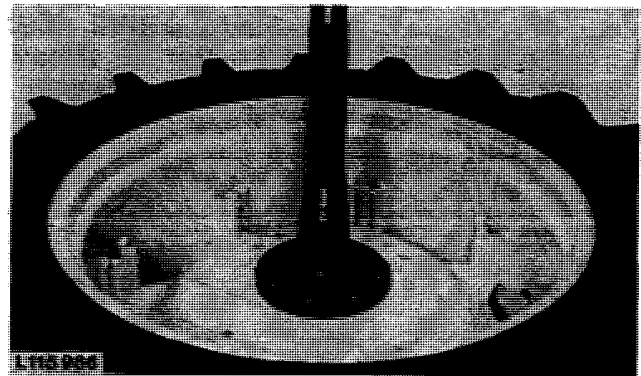
- 25—Rear axle
- 26—Final drive shaft
- 27—Locking plate
- 28—Special twelve-point screw
- 29—Washer
- 30—Snap ring
- 31—Planet pinion carrier
- 32—Planet pinion shaft (3 used)
- 33—Thrust washer (6 used)
- 34—Planet pinion (3 used)
- 35—Needle bearings (120 used)
- 36—Spacer (3 used)

L107219-LB35055AE-010287

POSITIONING REAR AXLE UPRIGHT

IMPORTANT: Before assembling and adjusting final drives, rear axle must be bolted to corresponding rear wheel of tractor or to a matching wheel rim.

Use at least two bolts to attach flanged axle to wheel rim; clamp rack-and-pinion axle securely to wheel rim.



L115986,L115987-LB35055AE-010287

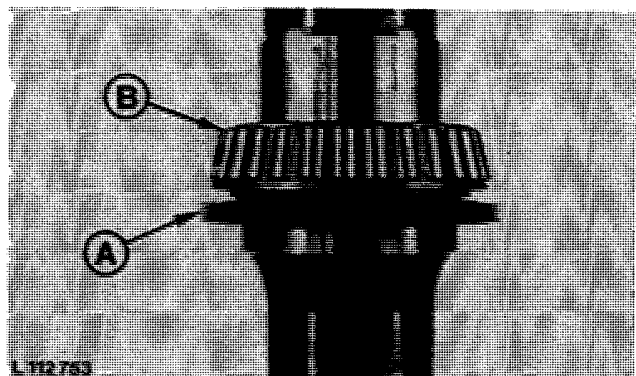
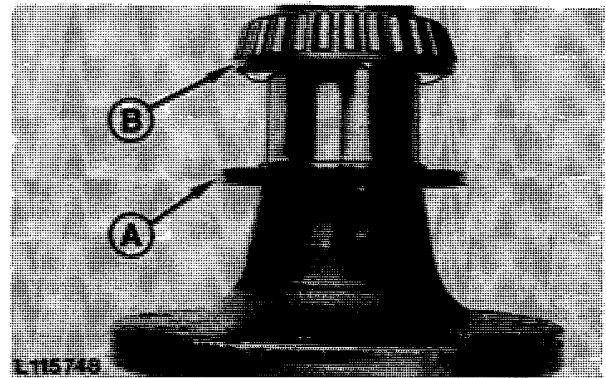
INSTALLING OUTER OIL SEAL AND TAPER ROLLER BEARING CONE

With metal side first, slide new outer oil seal (A) onto rear axle up to stop. Coat sealing lips with John Deere EP multipurpose grease.

Heat taper roller bearing cone (B) to 150°C (300°F) before installing.



CAUTION: Do not heat oil above 190°C (380°F) as otherwise oil or oil fumes can ignite. Plan a safe handling procedure to avoid burns.



L115748,L112753-LB35055AE-010287

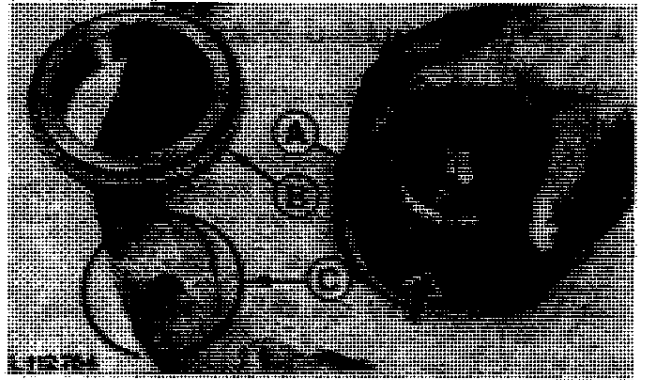
ASSEMBLING FINAL DRIVE

Slide final drive housing vertically over rear axle.

Dip new inner oil seal (A) in oil before installing.

Install oil seal (A) with sealing lip facing outwards.

Heat taper roller bearing (B) before installing. Press snap ring (C) in groove (see arrow).

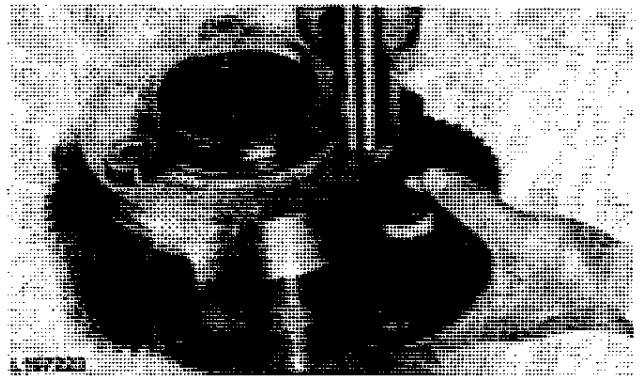


L112754-LB25045AE-010886

INSTALLING PLANET PINION CARRIER

Coat needle bearings with grease. Install thrust washers as shown.

Position assembled planet pinion carrier on final drive housing.



L107223-LB35055AE-010287

ADJUSTING ROLLING DRAG TORQUE

Rotate the final drive housing through three complete revolutions.

Using turning device (A), rotate final drive housing smoothly through ten complete revolutions, and then use torque wrench (B) to determine rolling drag torque of final drive housing.

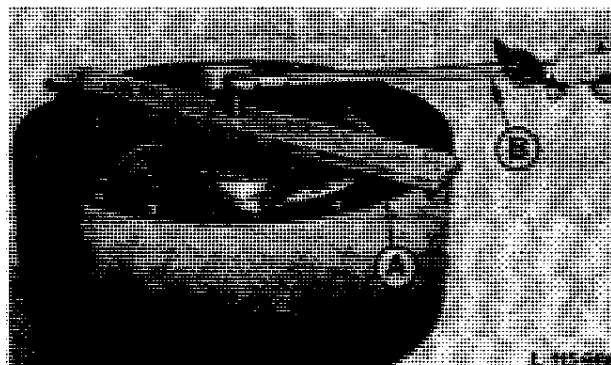
Install washer and new special twelve-point screw.

Add 8 to 12.5 Nm* (6 to 9 ft-lb) or 10 to 13.5 Nm** (7.5 to 10 ft-lb) to the measured rolling drag torque. Tighten special twelve-point screw until calculated rolling drag torque is achieved.

NOTE: Always rotate the final drive housing smoothly through ten revolutions before measuring rolling drag torque.

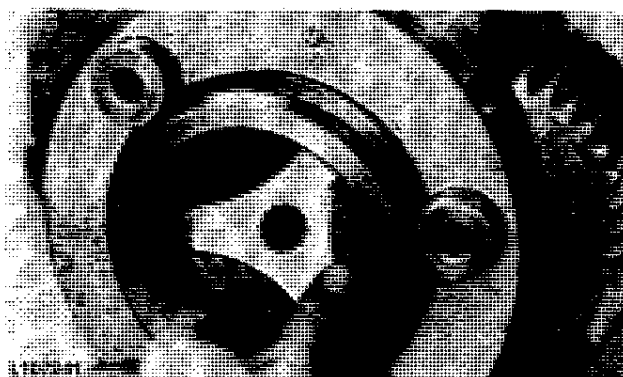
A—Turning device
(self-manufactured)
B—Torque wrench

- * With standard final drive
- ** With heavy-duty final drive



L115988-LB35055AE-010888

INSERTING LOCKING PLATE



L107241-LA75035AE-091184

INSTALLING FINAL DRIVE ASSEMBLY

Install brake disk assembly, see Section 60, Group 25.
Install final drive assembly as described in Section 10,
Group 25.

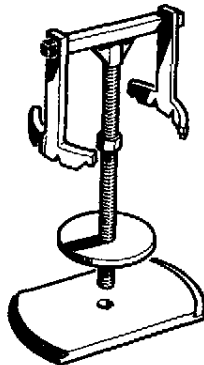
*NOTE: Having installed final drive assembly, lubricate
outer taper roller bearing with 6 to 8 strokes of
John Deere EP multipurpose grease.*

ENDANTR-LB35055CE-010888

Group 60 INDEPENDENT PTO SHAFTS

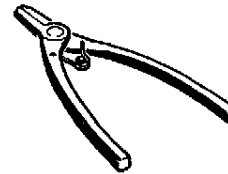
SPECIAL TOOLS

KML 10 005



(A)

JDT-1



(B)

L108002

**A—Removing and installing
springs of multiple disk
clutch**

**B—Removing and installing
snap rings**

L108002-LA75015AE-091184

SPECIFICATIONS

PTO SHAFTS

Dimensions of New Parts

Preload of taper roller bearings in bearing quill (with 540 rpm heavy-duty PTO)	0 to 0.05 mm (0 to 0.002 in.)
I.D. of bushings in transmission case	34.95 to 35.03 mm (1.376 to 1.379 in.)
Thickness of a double gear thrust washer (with 540/1000 rpm PTO)	2.25 mm (0.090 in.)

ZAPFW-LB35060AE-010888

SPECIFICATIONS (Contd.)**Dimensions of New Parts****PTO CLUTCH AND PTO BRAKE**

Thickness of one external splined disk	2.3 mm (0.09 in.)
Thickness of one internal splined disk:	
– 540 rpm PTO	1.51 to 1.63 mm (0.059 to 0.064 in.)
– 540/1000 rpm PTO	2.44 to 2.54 mm (0.096 to 0.1 in.)
Thickness of brake disk with lining	5.9 to 6.1 mm (0.232 to 0.240 in.)
Pressure spring of PTO clutch piston:	
– Free length	98 mm (3.88 in.)
– Spring tension at a length of 46 mm (1.80 in.)	530 to 650 N (117 to 143 lb)

CONTROL VALVE ASSEMBLY

Outer spring of pressure regulating valve:	
– Free length, approx.	129 mm (5.08 in.)
– Spring tension at a length of 64 mm (2.52 in.)	96 to 117 N (22 to 26 lb)
Inner spring of pressure regulating valve:	
– Free length, approx.	182 mm (7.17 in.)
– Spring tension at a length of 109 mm (4.29 in.)	84 to 103 N (19 to 23 lb)
O.D. of spool	17.40 to 17.43 mm (0.685 to 0.686 in.)
Dia. of spool bore in transmission shift cover	17.45 to 17.48 mm (0.687 to 0.688 in.)
Pretension of special pin spring (usually 1 shim)	27.5 to 36.5 N (6 to 8 lb)
Pretension of valve spool spring (usually 7 shims)	57.5 to 62.5 N (13 to 14 lb)
Distance between shoulder of spool and sleeve	1.5 to 2 mm (0.06 to 0.08 in.)
Special pin spring:	
– Free length, approx.	48 mm (1.9 in.)
– Spring tension at a length of 34 mm (1.34 in.)	90 to 110 N (20 to 25 lb)

ZAPFW-LB35060BE-010888

Independent PTO Shafts

Dimensions of New Parts

Shorter spring of valve spool:

– Free length, approx.	22 mm (0.87 in.)
– Spring tension at a length of 16 mm (0.63 in.)	55 to 65 N (12 to 15 lb)

Longer spring of valve spool:

– Free length, approx.	21 mm (0.83 in.)
– Spring tension at a length of 14 mm (0.55 in.)	200 to 240 N (45 to 55 lb)

Pressure springs of mechanical shift lever detent:

– Free length, approx.	30 mm (1.18 in.)
– Spring tension at a length of 21 mm (0.83 in.)	60 to 73 N (14 to 16 lb)

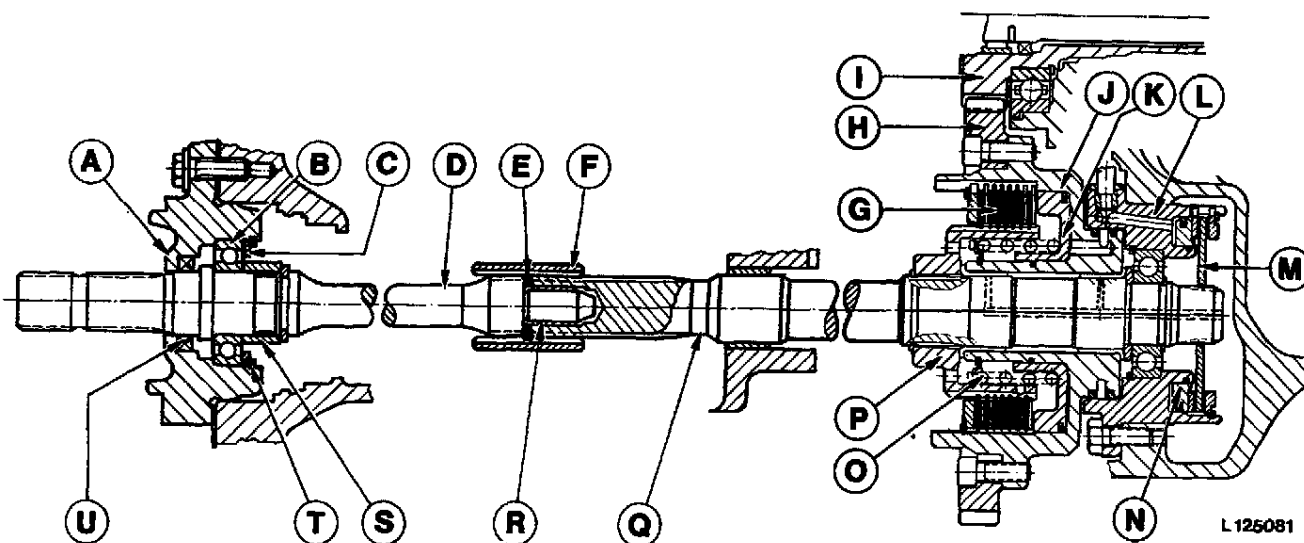
ZAPFW-LB35060CE-010888

TORQUES FOR HARDWARE

Bearing quill to transmission case, cap screws	115 Nm (85 ft-lb)
Ring gear to clutch drum, hex. socket screws	75 Nm (55 ft-lb)
Oil manifold to clutch housing, cap screws	50 Nm (35 ft-lb)

ZAPFW-LB35060DE-010888

INDEPENDENT 540 RPM PTO, SECTIONAL VIEW (With Collar Shift Transmission)



L125081

A-Bearing quill
B-Ball bearing
C-Washer
D-PTO stub shaft
E-Snap ring
F-Connecting sleeve
G-Disk pack

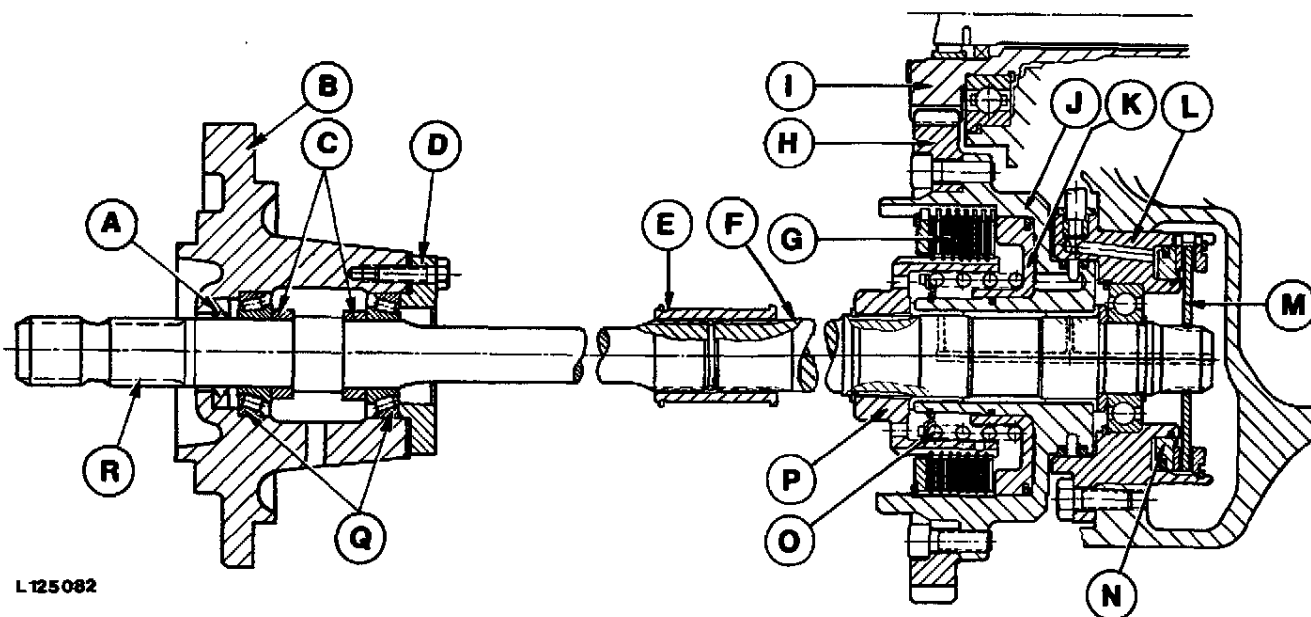
H-Drive gear
I-Hollow drive shaft
J-Clutch drum
K-PTO clutch piston
L-Oil manifold
M-Brake disk
N-PTO brake piston

O-Pressure spring
P-Clutch hub
Q-PTO clutch shaft
R-Bushing
S-Spacer ring
T-Snap ring
U-Oil seal

NOTE: The standard rear bearing (B) is shown in this illustration.

L125081-LB35060AE-010888

INDEPENDENT 540 RPM PTO, SECTIONAL VIEW (With Synchronized Transmission)



L125082

- A—Oil seal**
B—Bearing quill
C—Spacers
D—Cover
E—Connecting sleeve
F—PTO clutch shaft

- G—Disk pack**
H—Drive gear
I—Hollow drive shaft
J—Clutch drum
K—PTO clutch piston

- L—Oil manifold**
M—Brake disk
N—PTO brake platon
O—Pressure spring
P—Clutch hub
Q—Taper roller bearing
R—PTO shaft

NOTE: The heavy-duty rear bearing (Q) is shown in this illustration.

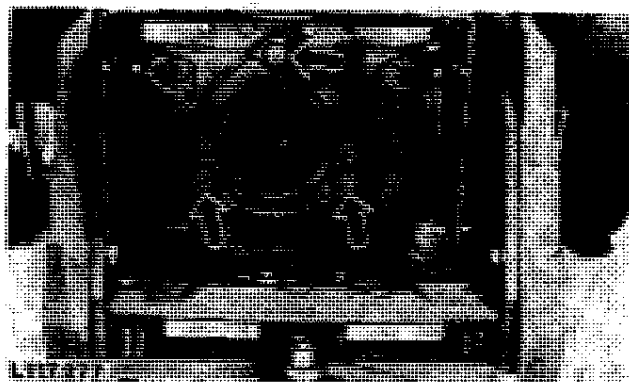
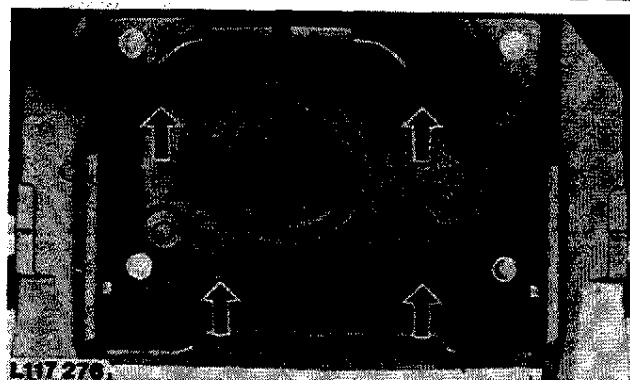
L125082-LR3506DAE-010888

REMOVING PTO SHAFT WITH BEARING QUILL (540 rpm PTO)

Drain transmission oil.

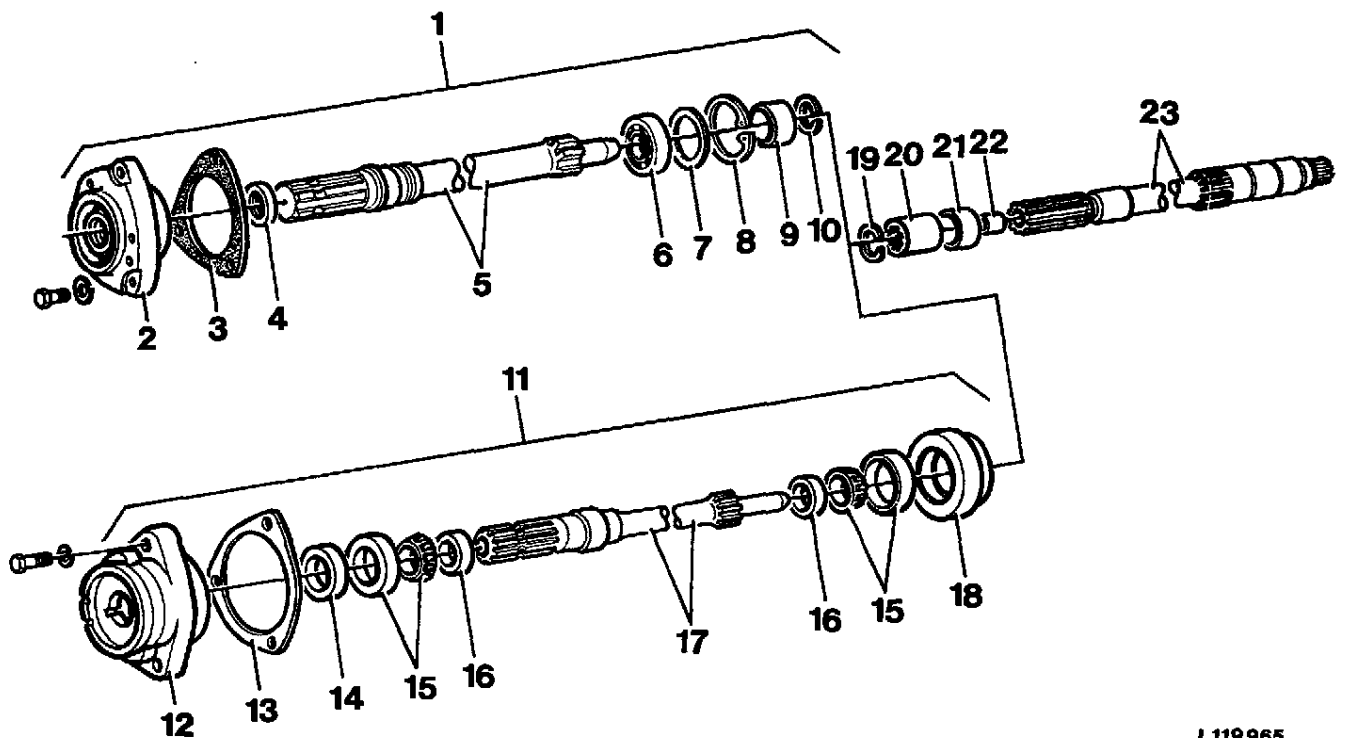
Remove cap screws (see arrows) and pull out PTO shaft
with bearing quill.

*NOTE: Push connecting sleeve between PTO shaft and
PTO clutch shaft to the front when removing
PTO shaft (see exploded view of PTO).*



L117276,L117277-LB35060AE-010688

540 RPM PTO (COLLAR SHIFT TRANSMISSION), EXPLODED VIEW



L119965

1-PTO (standard)
2-Bearing quill
3-Gasket
4-Oil seal
5-PTO shaft
6-Ball bearing

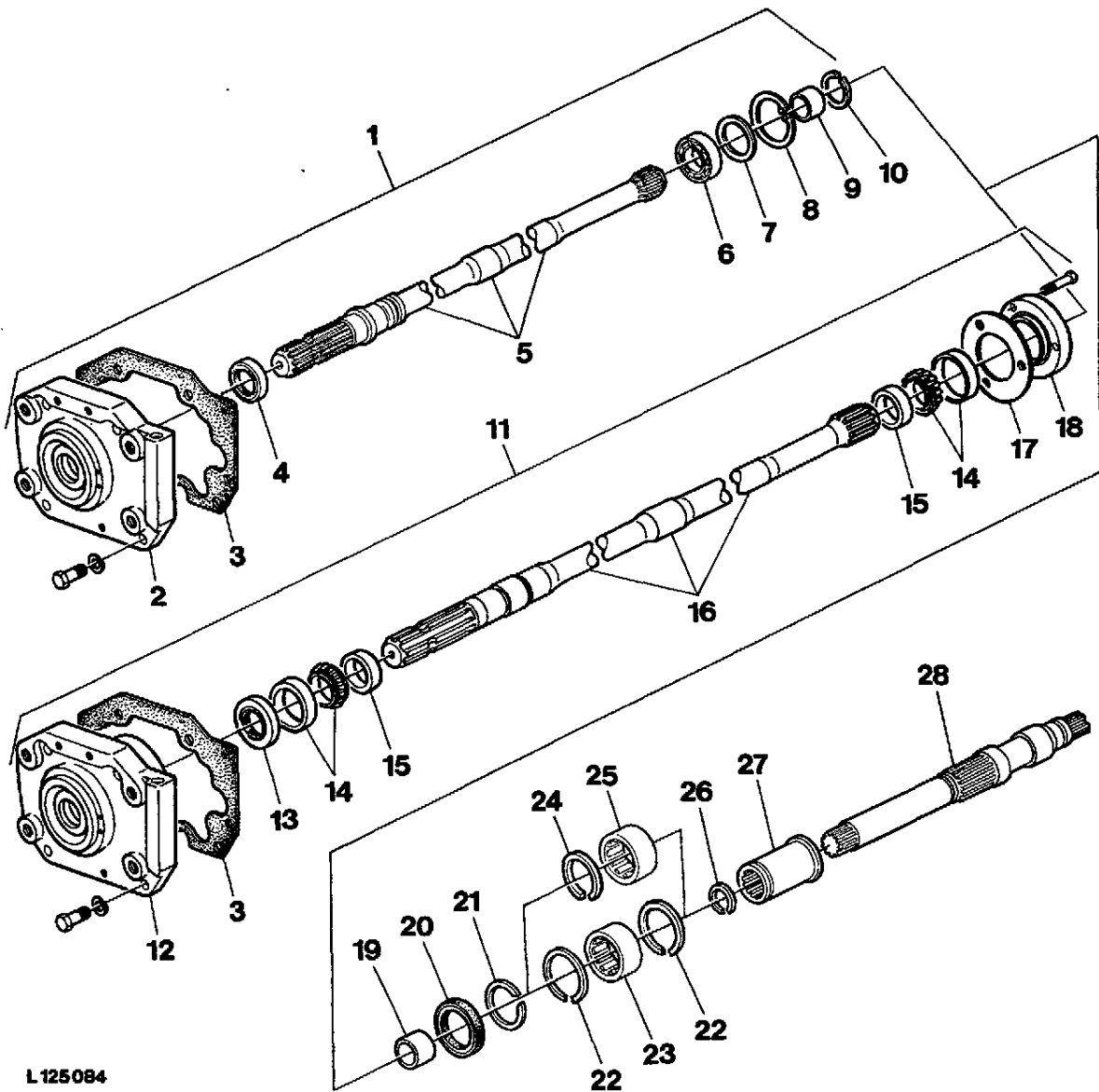
7-Washer
8-Snap ring
9-Spacer bushing
10-Snap ring
11-PTO (heavy-duty)

12-Bearing quill
13-Shims (use as reqd.)
14-Oil seal
15-Taper roller bearing
16-Spacers
17-PTO shaft

18-Bearing ring
19-Snap ring
20-Connecting sleeve
21-Bushing
22-Bushing
23-PTO clutch shaft

L119965-LB35060AE-010888

540 RPM PTO (SYNCHRONIZED TRANSMISSION), EXPLODED VIEW



L125084

1-PTO (standard)
2-Bearing quill
3-Gasket
4-Oil seal
5-PTO shaft
6-Ball bearing
7-Washer

8-Snap ring
9-Spacer ring
10-Snap ring
11-PTO (heavy-duty)
12-Bearing quill
13-Oil seal
14-Taper roller bearing

15-Spacer rings
16-PTO shaft
17-Shims (use as reqd.)
18-Cover
19-Bushing
20-Oil seal
21-Snap ring

22-Snap rings*
23-Needle bearing*
24-Snap ring**
25-Needle bearing**
26-Snap ring
27-Connecting sleeve
28-PTO clutch shaft

* Tractors without front wheel drive

** Tractors with front wheel drive

L125084-LB35060AE-010888

ADJUSTING TAPER ROLLER BEARINGS

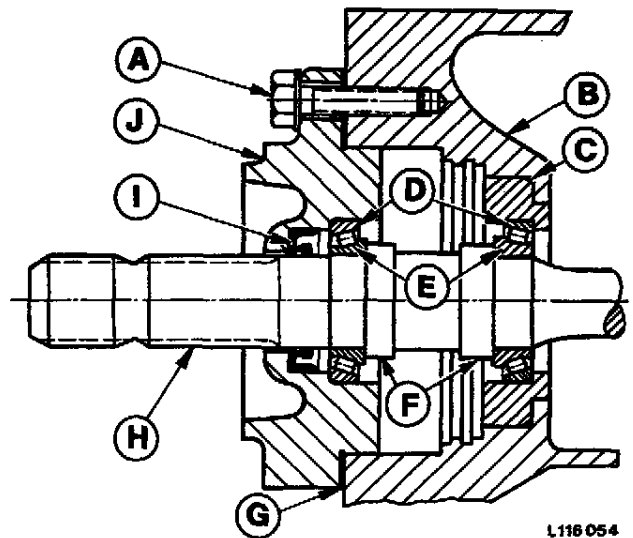
Heavy-Duty 540 rpm PTO – Collar Shift Transmission

Renew oil seal (I).

Install sufficient shims (G) so that there is measurable axial play. Remove sufficient shims to give a maximum preload of 0.05 mm (0.002 in.).

NOTE: Install paper and steel shims (G) alternately, whereby the first and last must be paper shims.

- | | |
|------------------------------|-----------------|
| A-Cap screw | F-Spacers |
| B-Transmission case | G-Shims |
| C-Bearing ring | H-PTO shaft |
| D-Taper roller bearing cups | I-Oil seal |
| E-Taper roller bearing cones | J-Bearing quill |



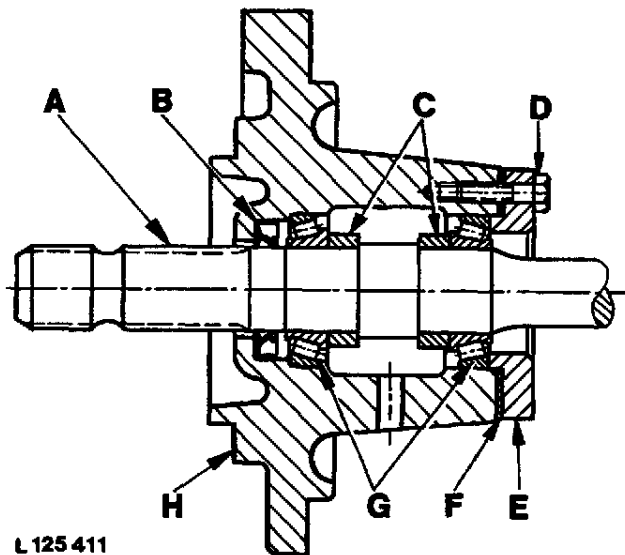
L116054-LB35060AE-010888

Heavy-Duty 540 rpm PTO – Synchronized Transmission

Renew oil seal (B).

Install sufficient shims (F) so that there is measurable axial play. Remove sufficient shims to give a preload of 0.05 mm (0.002 in.).

- | | |
|----------------------|------------------------|
| A-PTO shaft | E-Inner bearing quill |
| B-Oil seal | F-Shims (use as reqd.) |
| C-Spacers | G-Taper roller bearing |
| D-Cap screw (3 used) | H-Outer bearing quill |



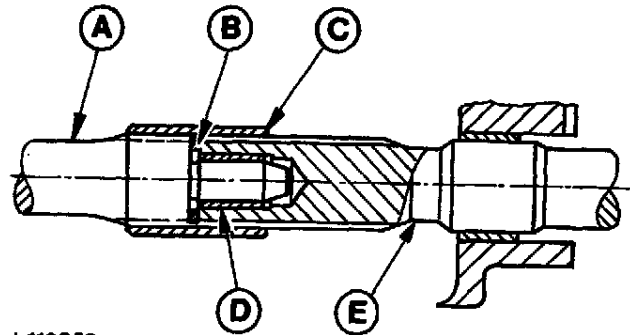
L125411-LB35060AE-010888

INSTALLING PTO SHAFT WITH BEARING QUILL

540 rpm PTO with Collar Shift Transmission

NOTE: Make sure that connecting sleeve (C) is seted on PTO clutch shaft (E).

A-PTO shaft
B-Snap ring
C-Connecting sleeve
D-Bushing
E-PTO clutch shaft



L116059

Renew gasket (standard PTO).

Tighten cap screws (see arrows) to 115 Nm (85 ft-lb).

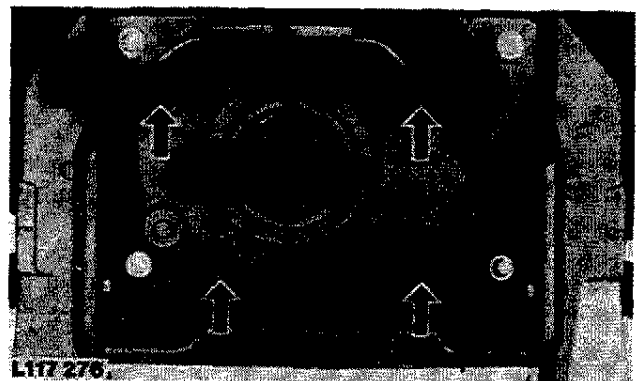


L116059,L117277-LB35060AE-010888

540 rpm PTO with Synchronized Transmission

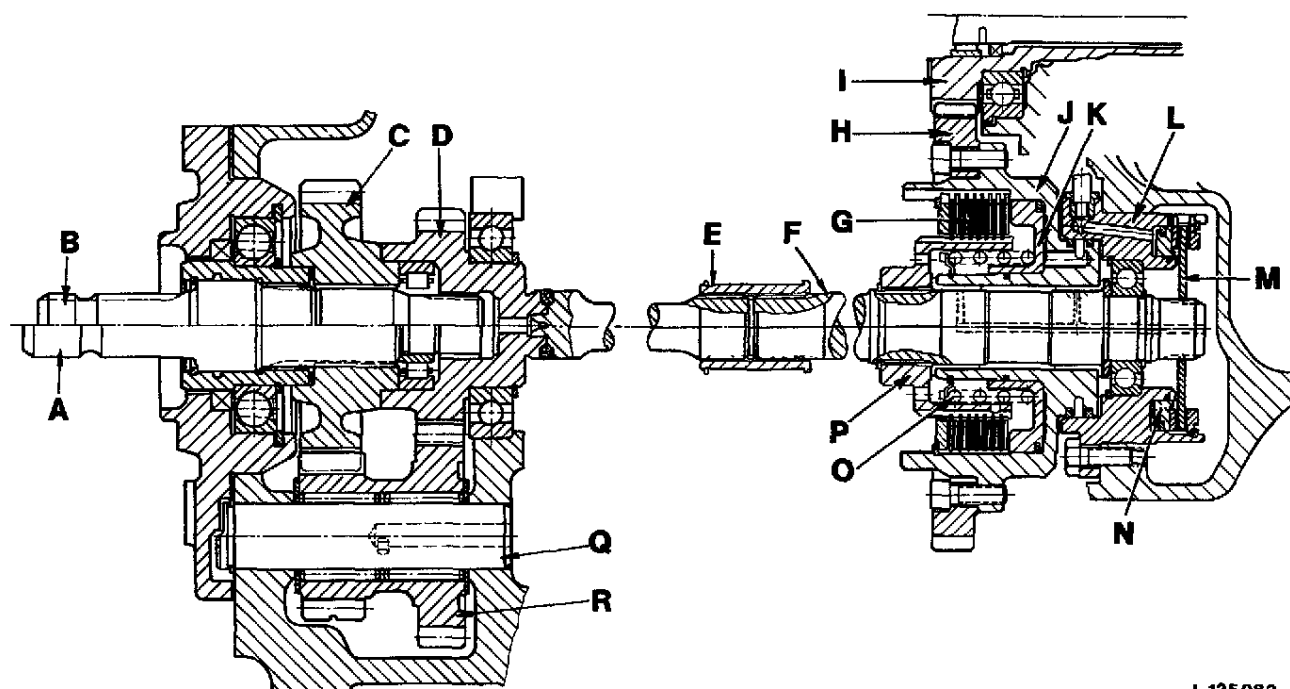
Renew gasket.

Tighten cap screws (see arrows) to 115 Nm (85 ft-lb).



L117276-LB35060AE-010888

**INDEPENDENT 540/1000 RPM PTO (INTERCHANGEABLE STUB SHAFT),
SECTIONAL VIEW**



L 125083

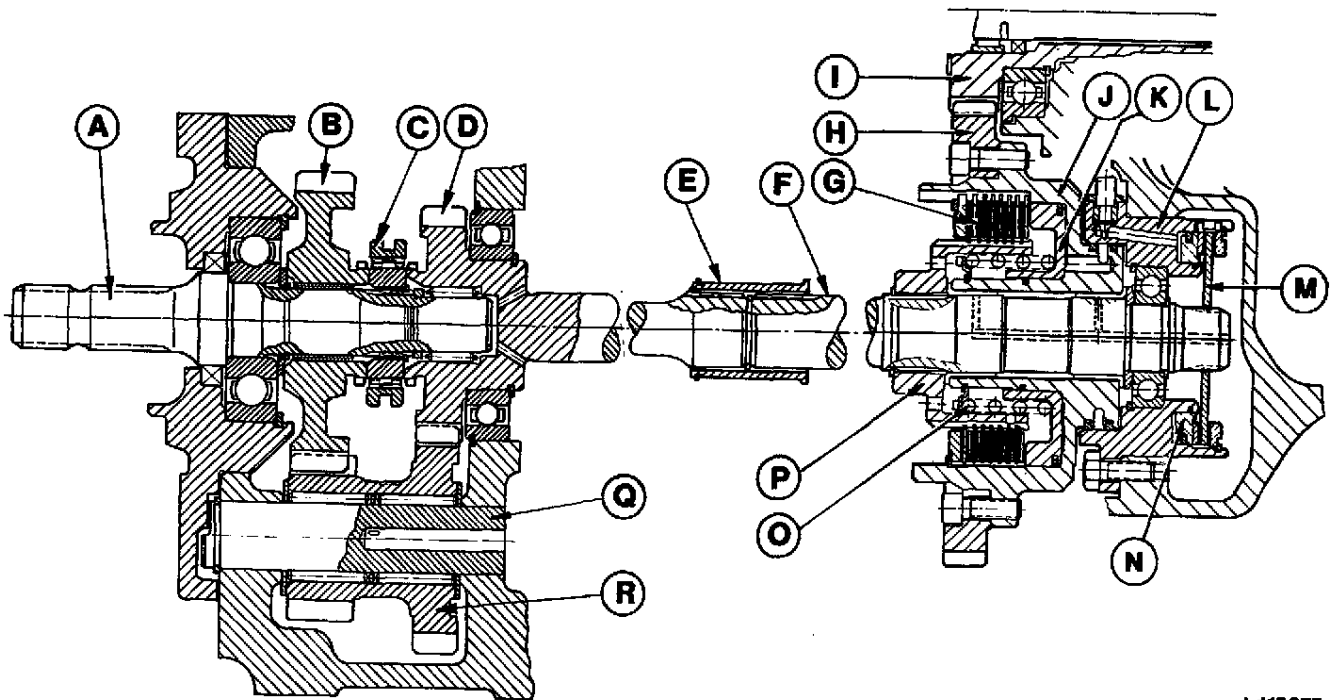
A-PTO stub shaft (1000 rpm)
B-PTO stub shaft (540 rpm)
C-Drive gear
D-PTO shaft with gear
E-Connecting sleeve
F-PTO clutch shaft

G-Disk pack
H-Drive gear
I-Hollow drive shaft
J-Clutch drum
K-PTO clutch piston
L-Oil manifold

M-Brake disk
N-PTO brake piston
O-Pressure spring
P-Clutch hub
Q-Countershaft
R-Double gear

L125083-LB35060AE-010888

INDEPENDENT 540/1000 RPM PTO (HANDSHIFT), SECTIONAL VIEW



L 117 275

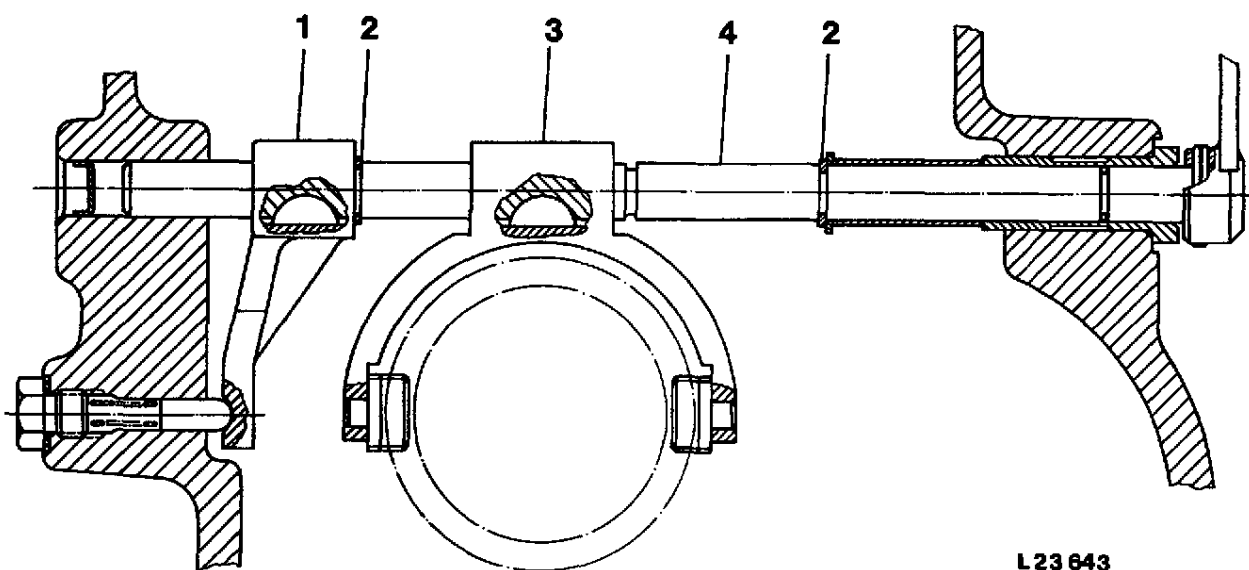
A-PTO stub shaft
B-Drive gear
C-Shifter sleeve
D-PTO shaft with gear
E-Connecting sleeve
F-PTO clutch shaft

G-Disk pack
H-Drive gear
I-Hollow drive shaft
J-Clutch drum
K-PTO clutch piston
L-Oil manifold

M-Brake disk
N-PTO brake piston
O-Pressure spring
P-Clutch hub
Q-Countershaft
R-Double gear

L117275-LB45055AE-010687

540/1000 RPM PTO SHIFT LINKAGE (HANDSHIFT), SECTIONAL VIEW



L23643-LB35060AE-010888

**PREPARING TO REMOVE PTO SHAFT
WITH GEAR (540/1000 RPM PTO)**

Remove rockshaft (see Section 10, Group 25).

Remove left-hand final drive assembly (see Section 10, Group 25).

When equipped, remove differential cover.

Remove rockshaft control arm (see Section 70, Group 15).

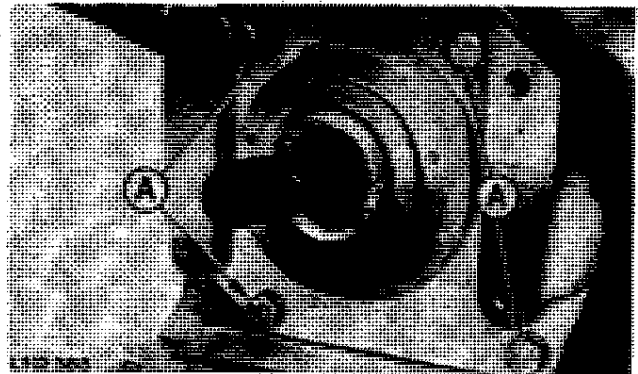
Remove brake band arm and anchor (see Section 60, Group 30).

ZAPFW-LB35060DE-010287

REMOVING BEARING QUILL WITH PTO SHAFT

Drain transmission oil.

Remove cap screws (A) and lift out bearing quill with PTO shaft.



L112388-LB35060AE-010888

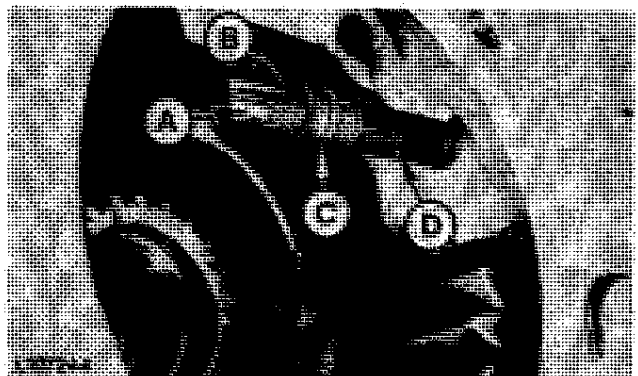
REMOVING 540 AND 1000 RPM PTO SHIFTER SHAFT

Remove shifter fork detent. Remove key (A) and snap ring (B).

NOTE: When removing shifter shaft, make sure washer (C) and spacer (D) do not drop down.

A-Key
B-Snap ring

C-Washer
D-Spacer



L107244-LB35060AE-010287

REMOVING SNAP RING FROM 540/1000 RPM PTO SHAFT WITH GEAR

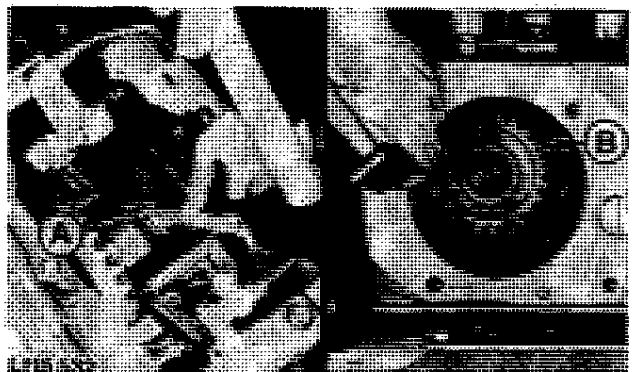


L115529-LB35060AE-010287

REMOVING 540/1000 RPM PTO SHAFT WITH GEAR

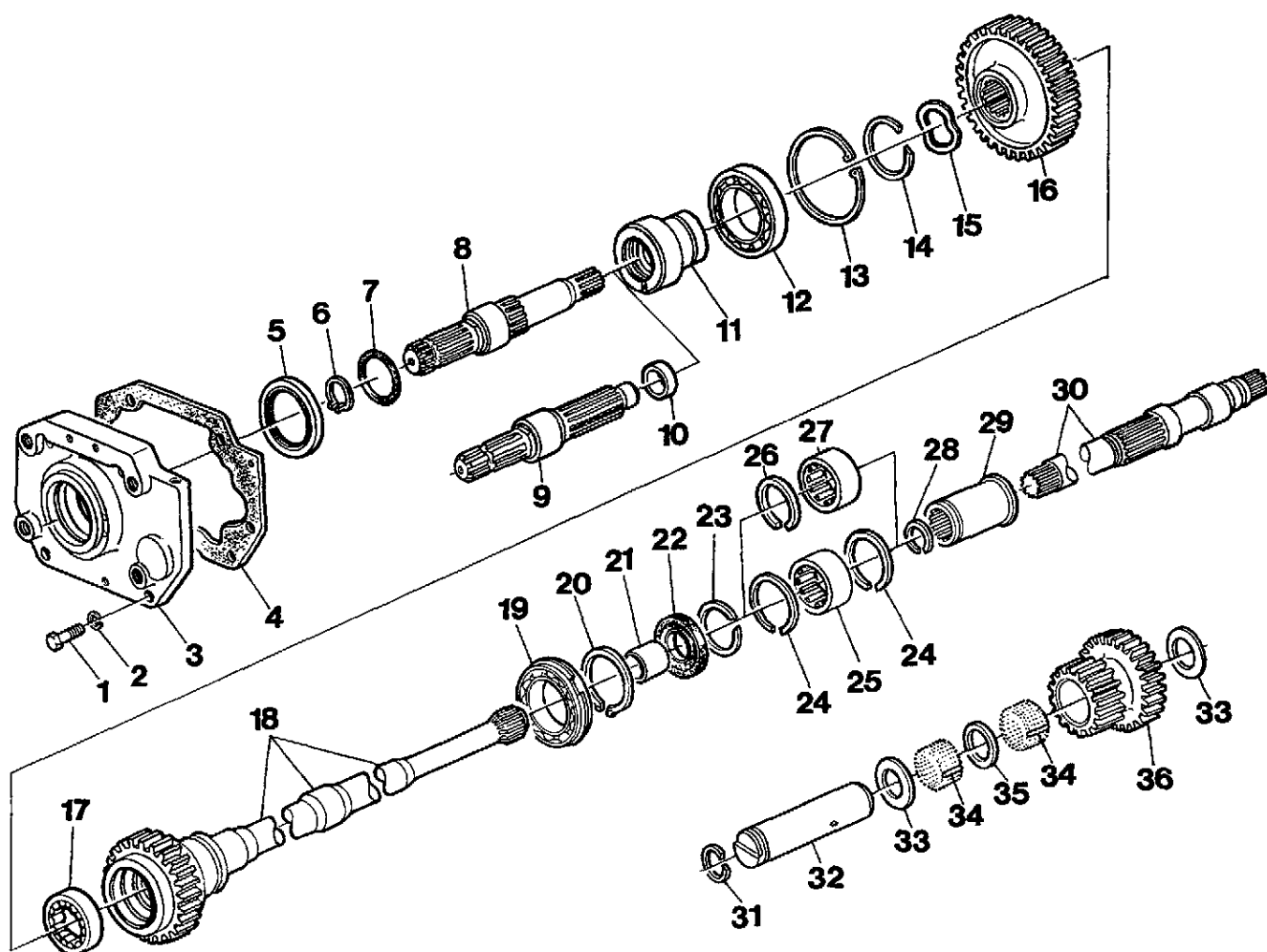
Using a slightly bent driver (A), drive PTO shaft evenly out of bearing. When necessary, supporting outer ring of ball bearing (B).

Remove countershaft and double gear.



L115532-LB35060AE-010287

INTERCHANGEABLE 540/1000 RPM PTO, EXPLODED VIEW



- 1-Cap screw (4 used)
- 2-Spring washer (4 used)
- 3-Bearing quill
- 4-Gasket
- 5-Oil seal
- 6-Snap ring
- 7-O-ring
- 8-PTO stub shaft (1000 rpm)
- 9-PTO stub shaft (540 rpm)
- 10-Cylinder roller bearing inner race (540 rpm PTO)
- 11-Guide
- 12-Ball bearing

- 13-Snap ring
- 14-Snap ring
- 15-Spring washer
- 16-Gear
- 17-Cylinder roller bearing
- 18-PTO shaft with gear
- 19-Ball bearing
- 20-Snap ring
- 21-Bushing
- 22-Oil seal
- 23-Snap ring
- 24-Snap ring*

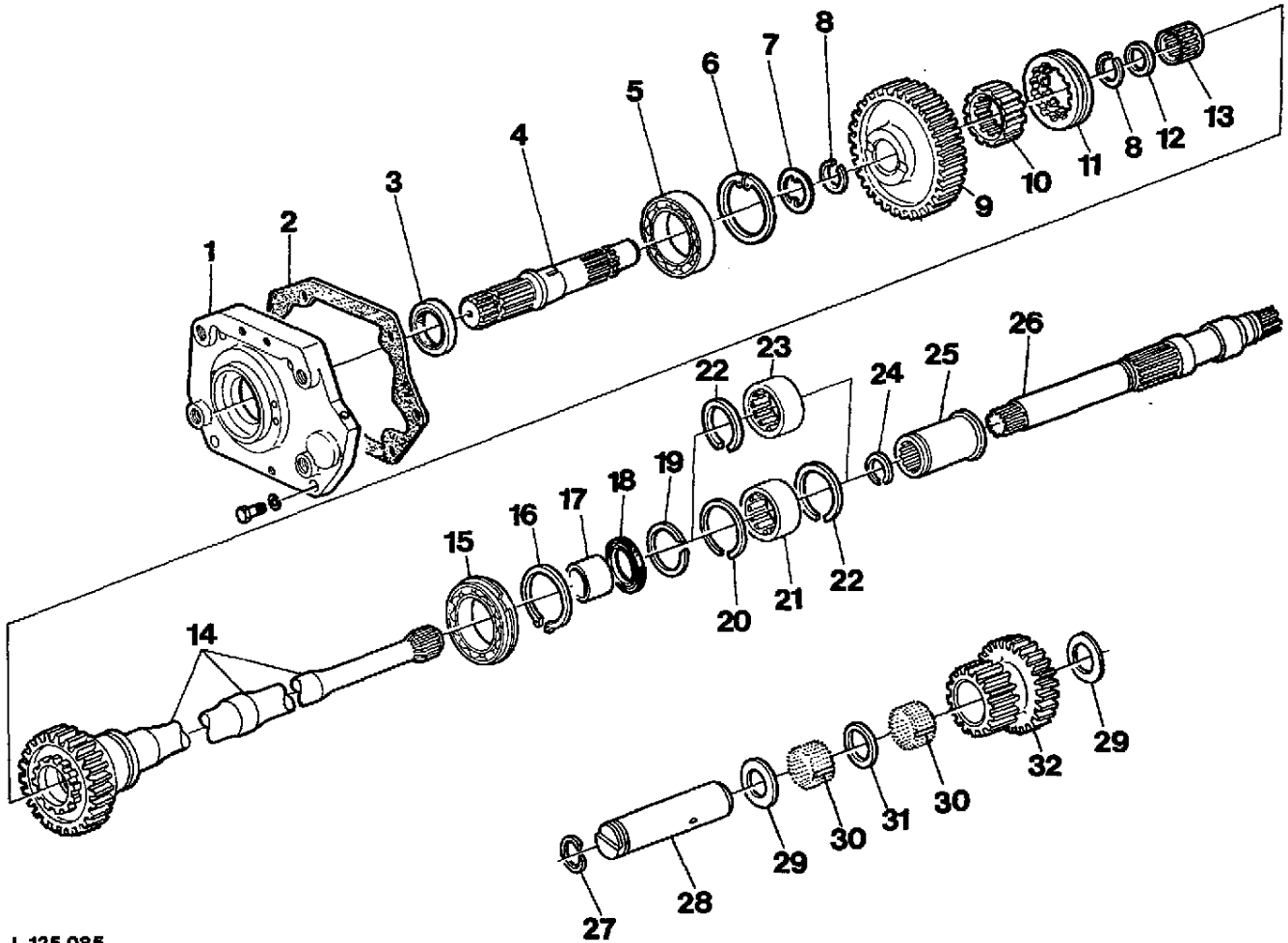
- 25-Needle bearing*
- 26-Snap ring**
- 27-Needle bearing**
- 28-Snap ring
- 29-Connecting sleeve
- 30-PTO clutch shaft
- 31-Snap ring
- 32-Countershaft
- 33-Washer
- 34-Needle bearing (48 used)
- 35-Spacer bushing
- 36-Double gear

L125 138

- * Without front wheel drive
- ** With front wheel drive

L125138-LB35060AE-010888

HANDSHIFT 540/1000 RPM PTO, EXPLODED VIEW



L 125 085

- 1-Bearing quill
- 2-Gasket
- 3-Oil seal
- 4-PTO stub shaft
- 5-Ball bearing
- 6-Snap ring
- 7-Thrust washer
- 8-Snap ring
- 9-Gear
- 10-Shifter sleeve carrier
- 11-Shifter sleeve

- 12-Washer
- 13-Needle bearing
- 14-PTO shaft with gear
- 15-Ball bearing
- 16-Snap ring
- 17-Bushing
- 18-Oil seal
- 19-Snap ring
- 20-Snap ring*
- 21-Needle bearing*

- 22-Snap ring**
- 23-Needle bearing**
- 24-Snap ring
- 25-Connecting sleeve
- 26-PTO clutch shaft
- 27-Snap ring
- 28-Countershaft
- 29-Washers
- 30-Needle bearings (48 used)
- 31-Spacer bushing
- 32-Double gear

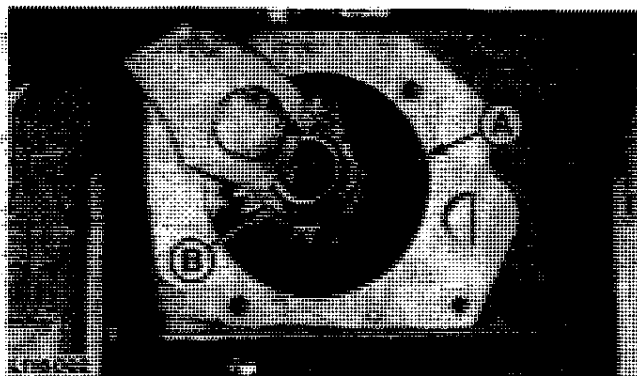
- * Without front wheel drive
- ** With front wheel drive

L125085-LB35060AE-010889

INSTALLING DOUBLE GEAR AND COUNTERSHAFT (540/1000 RPM PTO)

Install countershaft (A) so that shoulder at end of shaft is vertical.

Install PTO shaft with gear (B), thereby sliding snap ring over PTO shaft.



L116002-LB35060AE-010287

INSTALLING SNAP RING (540/1000 RPM PTO)



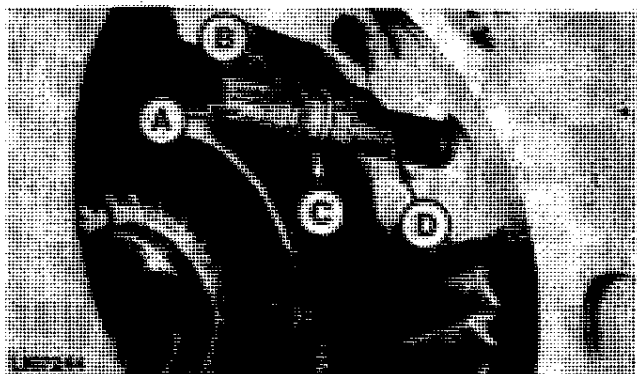
L115529-LB350608E-010287

INSTALLING SHIFTER SHAFT (540/1000 RPM PTO)

Position detent and shifter fork on shifter shaft (see "PTO Shift Linkage, Sectional View").

A-Key
B-Snap ring

C-Washer
D-Spacer sleeve

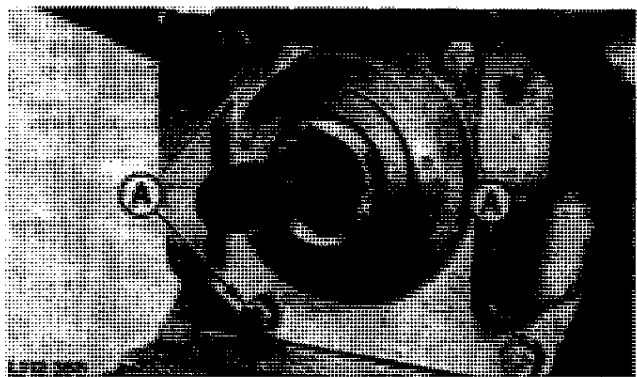


L107244-LB35060AE-010688

INSTALLING BEARING QUILL WITH PTO SHAFT (540/1000 RPM PTO)

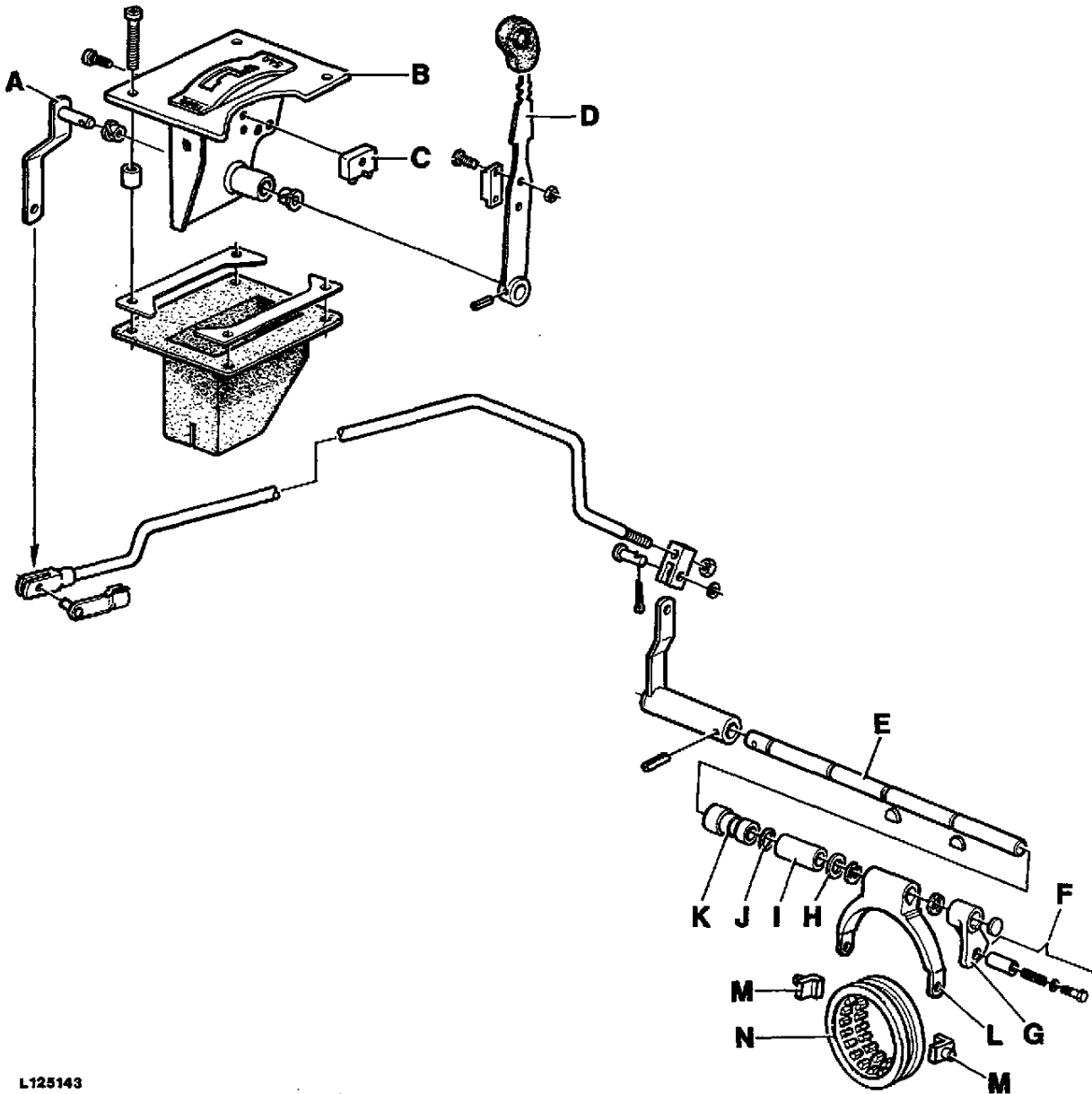
Renew oil seal and gasket.

Tighten cap screws (A) to 115 Nm (85 ft-lb).



L112388-LB35060AE-010888

PTO SHIFT LINKAGE - WITH SG2 CAB, EXPLODED VIEW



L125143

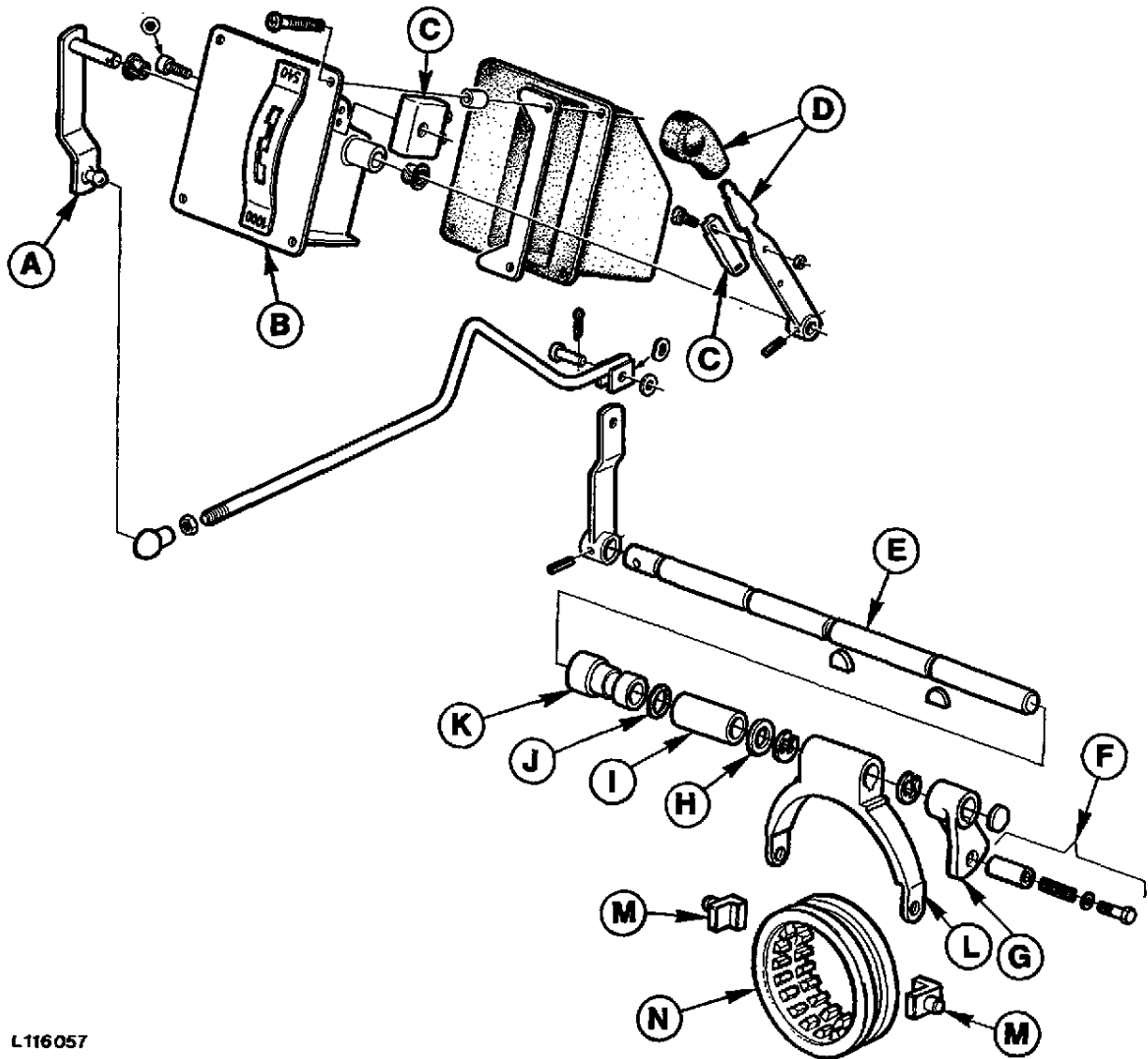
A—Lever
B—Shift console
C—Sending unit for PTO
indicator light
D—Shift lever

E—Shifter shaft
F—Detent assy.
G—Detent lever
H—Washer
I—Spacer sleeve

J—O-ring
K—Bearing sleeve
L—Shifter fork
M—Guide shoes
N—Shifter collar

L125143-LB35060AE-010888

PTO SHIFT LINKAGE (WITH MC1 CAB), EXPLODED VIEW



L116057

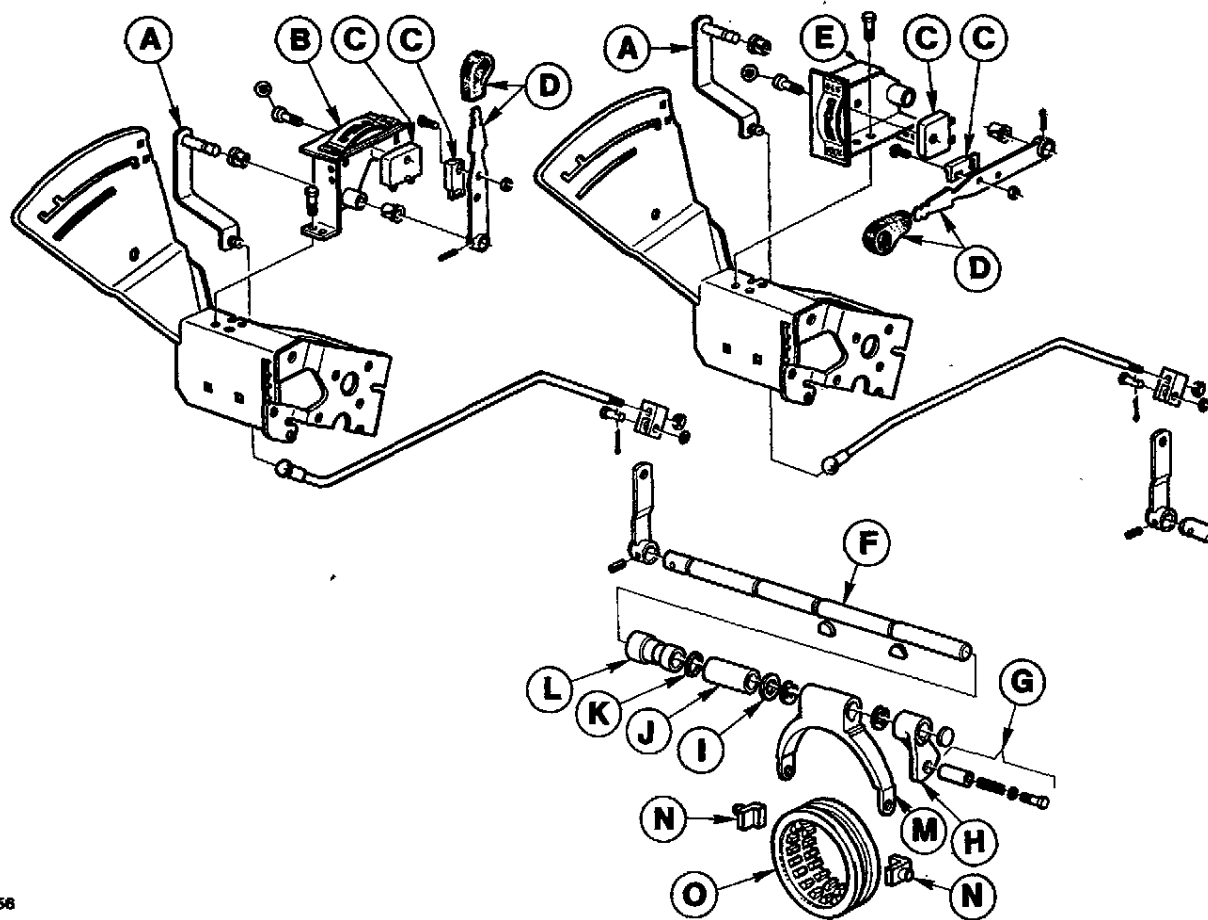
A-Lever
B-Shift console
C-Sending unit for PTO
indicator light
D-Shift lever

E-Shifter shaft
F-Shift fork detent
G-Stop
H-Washer
I-Spacer sleeve

J-O-ring
K-Bearing sleeve
L-Shift fork
M-Guide shoes
N-Shift collar

L116057-LB35060AE-010287

PTO SHIFT LINKAGE - WITHOUT CAB, EXPLODED VIEW



L116 056

A—Lever
B—Shift console*
C—Sending unit for PTO indicator light
D—Shift lever

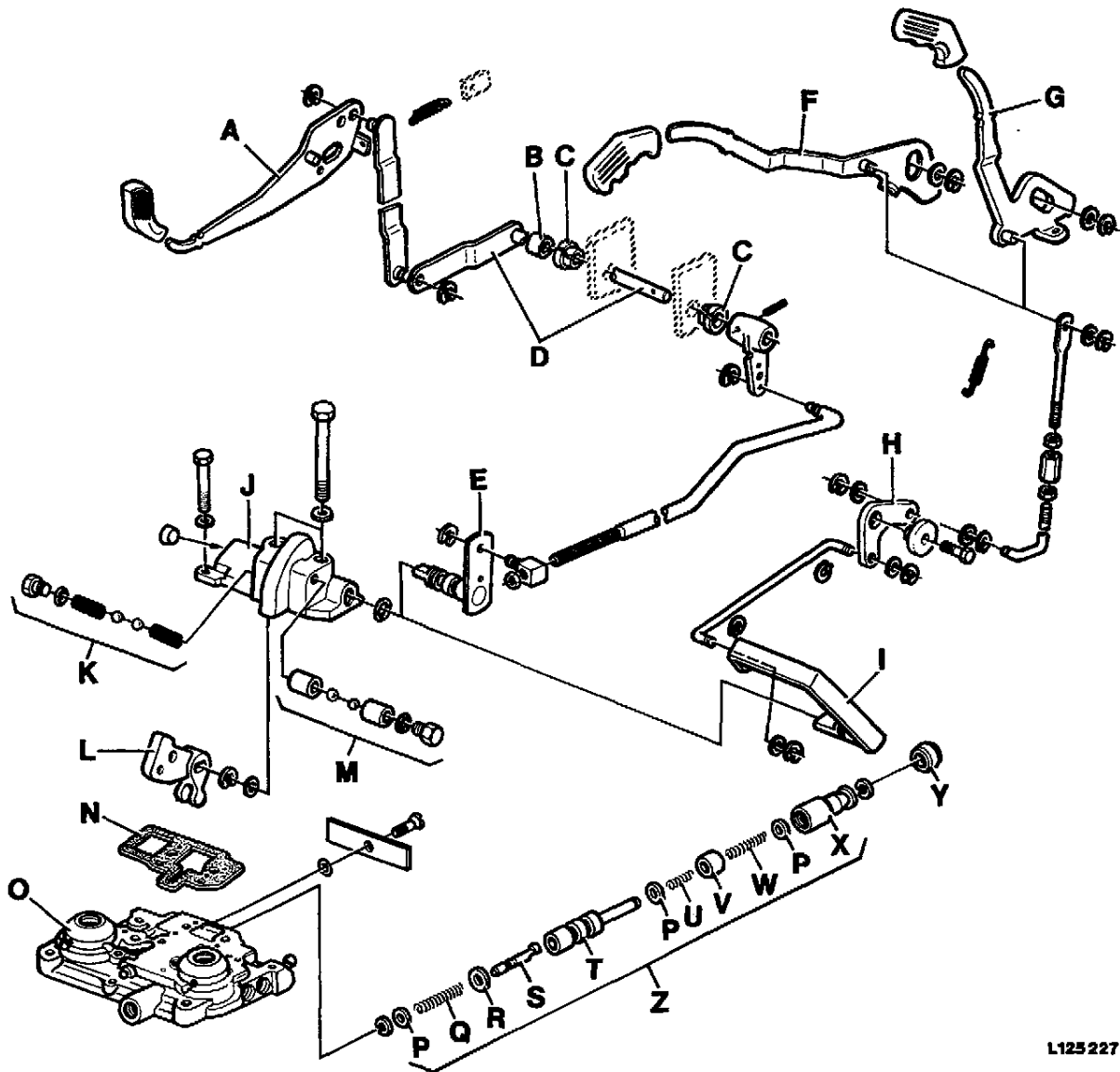
E—Shift console**
F—Shifter shaft
G—Detent assy.
H—Detent lever
I—Washer
J—Spacer sleeve

K—O-ring
L—Bearing sleeve
M—Shifter fork
N—Guide shoes
O—Shifter collar

* Poppet valve selective control valve
** Spool-type selective control valve or without selective control valves

L116056-LB35060AE-010888

PTO CONTROL VALVE AND SHIFT LEVER DETENT, EXPLODED VIEW



L125227

A—Control lever*
 B—Bushings*
 C—Bushings*
 D—Lever shaft *
 E—Lever shaft*
 F—Control lever**
 G—Control lever***
 H—Lever
 I—Lever shaft

J—Cover
 K—Mechanical detent
 L—Control arm
 M—Hydraulic detent
 N—Gasket
 O—Transmission shift cover
 P—Shims (use as reqd.)
 Q—Spring, 48 mm (1.90 in.)
 R—Washer

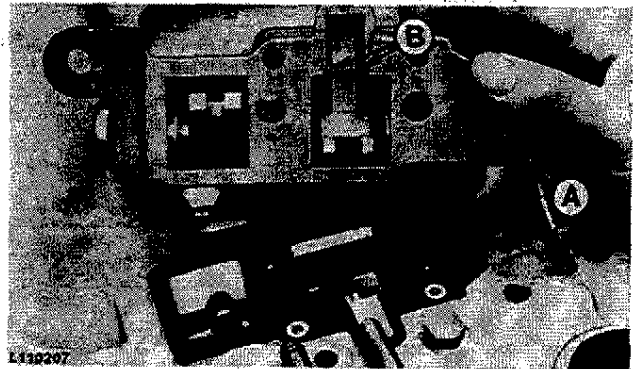
S—Special pin
 T—Spool
 U—Spring, 22 mm (0.87 in.)
 V—Sleeve
 W—Spring, 21 mm (0.83 in.)
 X—Shifter sleeve
 Y—Plastic plug
 Z—PTO control valve assembly

* Tractors with SG2 cab
 ** Tractors without cab
 *** Tractors with MC1 cab

L125227-LB35060AE-010688

REMOVING SHIFT LEVER DETENT COVER

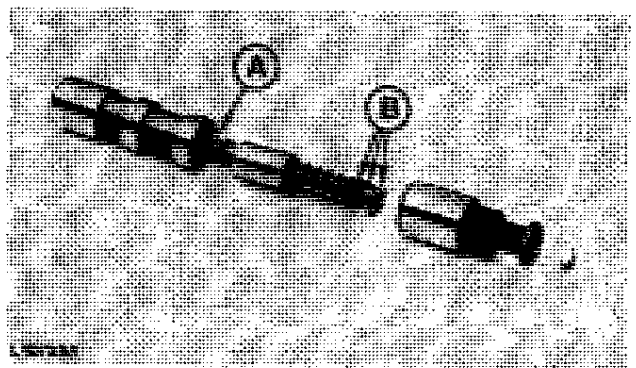
NOTE: After having removed complete cover, no longer move lever shaft (A), otherwise detent balls (B) can drop out.



L110207-LA75040AE-001184

SEPARATING SHIFT SLEEVE AND VALVE SPOOL

IMPORTANT: To ensure correct assembly, do not interchange shims (A) and (B).



L107255-LA75040AE-091184

CHECKING CONTROL VALVE SPRINGS

Spring A:

Free length: 48 mm (1.90 in.)

Tension at a spring length of 34 mm (1.34 in.):

90 to 110 N (20 to 25 lb)

Spring B:

Free length: 22 mm (0.87 in.)

Tension at a spring length of 16 mm (0.63 in.):

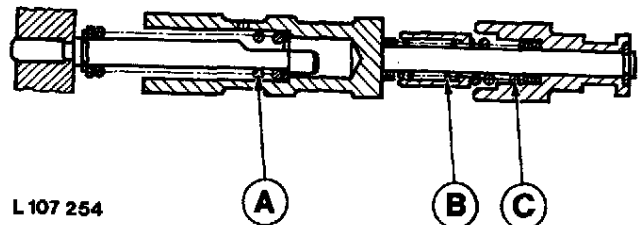
55 to 65 N (12 to 15 lb)

Spring C:

Free length: 21 mm (0.83 in.)

Tension at a spring length of 14 mm (0.55 in.):

200 to 240 N (45 to 55 lb)



L107254-LB25050AE-010886

ADJUSTING SPRING PRETENSION

NOTE: When installing new parts, adjust spring pretension as described below.

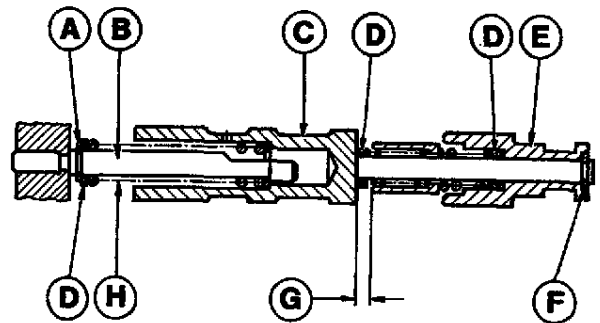
Spring (H) should lift off head end of special pin (B) at a pressure of 27.5 to 36.5 N (6 to 8 lb). If required, adjust correct spring pretension by adding shims (D).

IMPORTANT: A shim (D) must always be placed behind snap ring (A).

Install four shims (D) in the three positions shown on spool (C). Apply pressure to shifter sleeve (E). Shifter sleeve (E) should lift off snap ring (F) at a pressure of 57.5 to 62.5 N (13 to 14 lb). If this is not the case, adjust correct spring pretension by shifting shims (D). At the same time distance (G) should be 1.5 to 2 mm (0.06 to 0.08 in.).

A-Snap ring
B-Special pin
C-Spool
D-Shims

E-Shifter sleeve
F-Snap ring
G-1.5 to 2 mm
(0.06 to 0.08 in.)
H-Spring



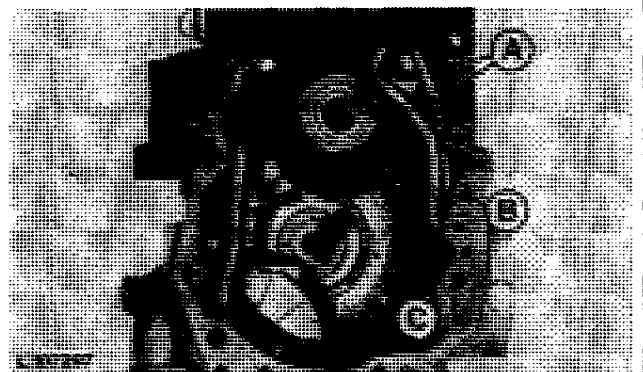
L107442

L107442-LB35060AE-010287

PREPARING TO REMOVE PTO CLUTCH

Remove transmission bearing quill and separate tractor between clutch housing and transmission case (see Section 10, Group 25).

Remove oil lines (A), Hi-Lo shift unit (B) and drive (C) for mechanical front wheel drive.



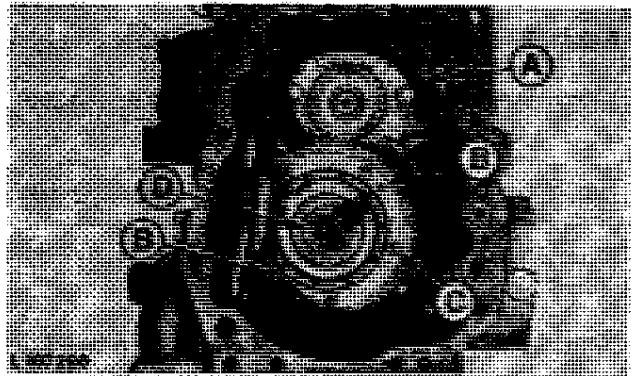
L107297-LA75040AE-091184

REMOVING PTO CLUTCH

Push gear ring through bores (B) from clutch hub with two hex. socket screws (C).

Remove snap ring (D) and pull clutch drum from shaft.

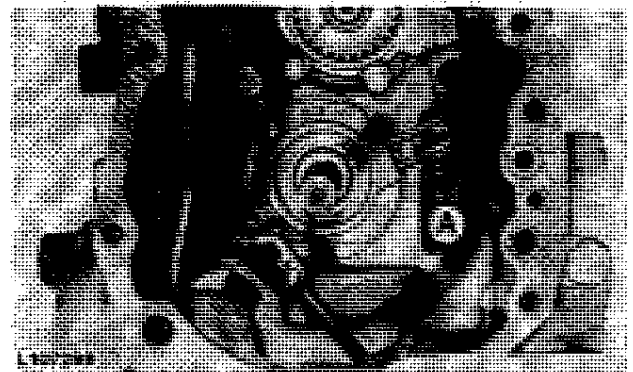
Remove connector (A).



L107298-LA75040AE-091184

REMOVING OIL MANIFOLD WITH PTO BRAKE

Remove oil lines (A) and oil manifold.

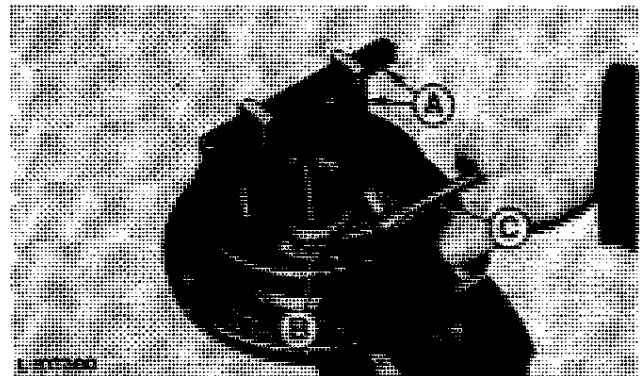


L107299-LA75040AE-091184

REMOVING DISK CLUTCH COMPRESSION SPRING

Remove clutch hub with clutch disks.

Using special special tool KML10005 (A) compress the compression spring and remove snap ring (B) with special tool JDT-1 (C).

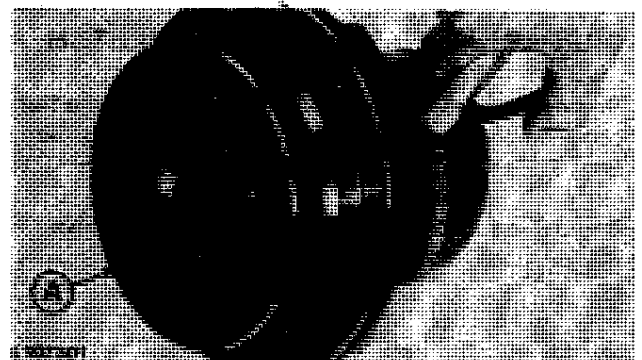


L107300-LA75040AE-091184

REMOVING PTO CLUTCH PISTON

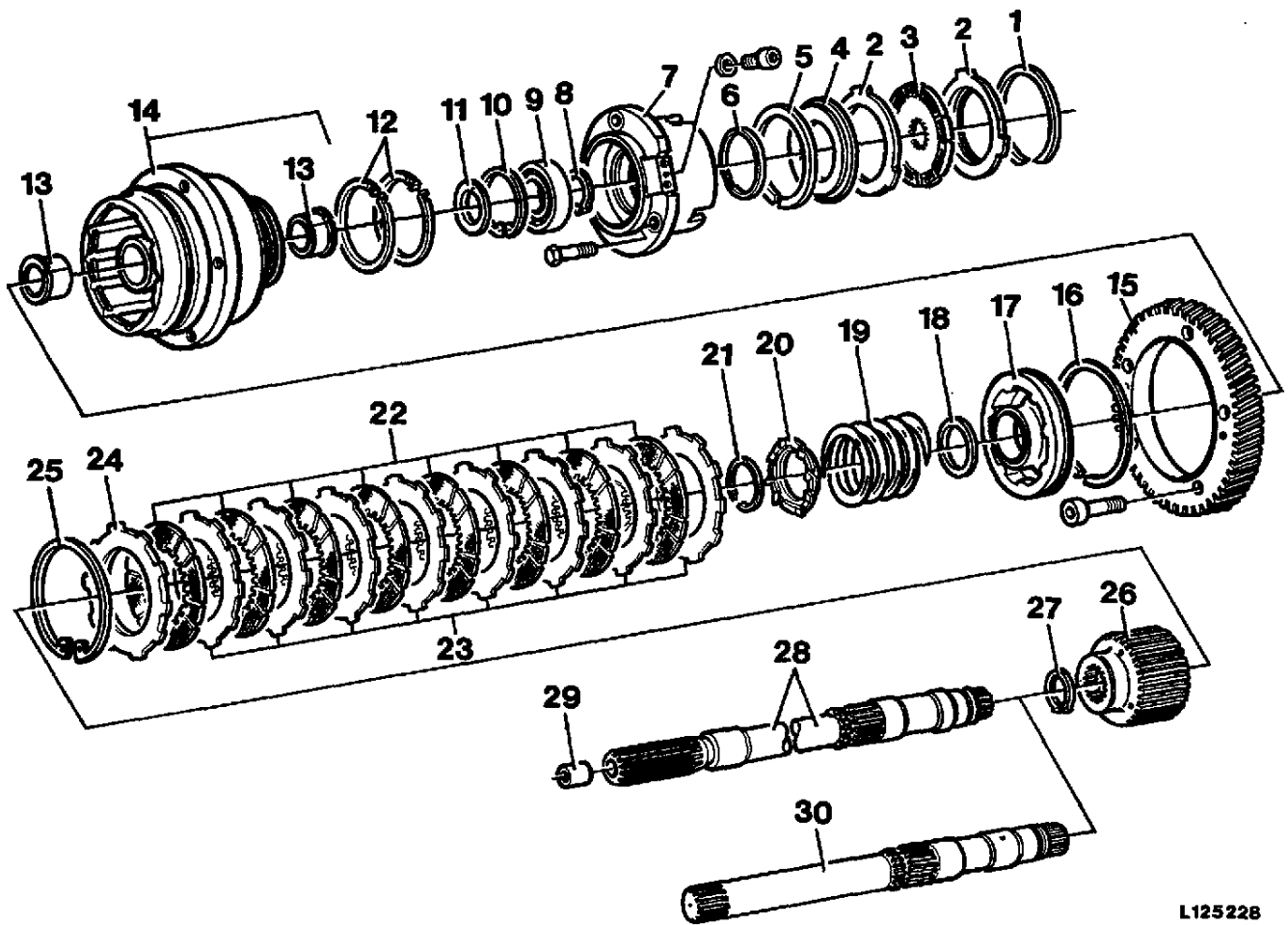
Remove piston from clutch drum with compressed air.

NOTE: Carefully guide piston seal ring past snap ring groove (A).



L107301-LA75040AE-091184

PTO CLUTCH, EXPLODED VIEW



L125228

- 1-Snap ring
- 2-Brake disks
- 3-Brake plate
- 4-PTO brake piston
- 5-Seal ring
- 6-Seal ring
- 7-Oil manifold
- 8-Snap ring
- 9-Ball bearing
- 10-Snap ring

- 11-Spacer
- 12-Seal rings
- 13-Bushings
- 14-Clutch drum
- 15-Ring gear*
- 16-Seal ring
- 17-PTO clutch piston
- 18-Seal ring
- 19-Compression spring

- 20-Spring plate
- 21-Snap ring
- 22-Internal splined clutch disks (7**, 8*** or 10**** used)
- 23-External splined clutch disks (7**, 8*** or 10**** used)

- 24-External splined backing plate
- 25-Snap ring
- 26-Clutch hub
- 27-Snap ring
- 28-PTO clutch shaft (with collar shift transmission)
- 29-Bushing (with collar shift transmission)
- 30-PTO clutch shaft (with synchronized transmission)

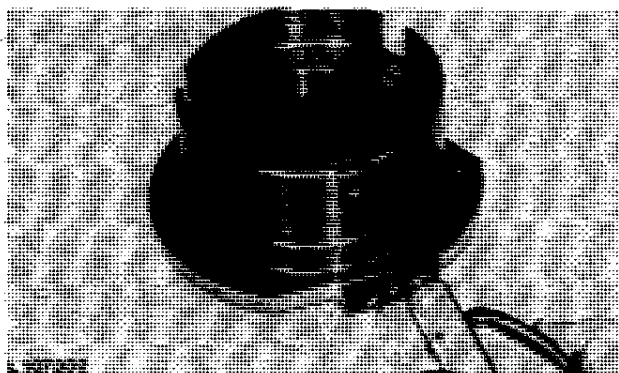
* 72 teeth – with 540 rpm PTO (collar shift transmission)
 65 teeth – with 540/1000 rpm PTO (collar shift transmission)
 73 teeth – with 540 rpm PTO (synchronized transmission)
 63 teeth – with 540/1000 rpm PTO (synchronized transmission)

** – With 540 rpm PTO; 2250 and 2450 tractors with synchronized transmission
 *** – With 540/1000 rpm PTO; 2250 and 2650 tractors with collar shift transmission and 2650 and 2850 tractors with synchronized transmission
 **** – With 540 rpm PTO

L125228-LB35060AE-010888

REMOVING PTO BRAKE PISTON

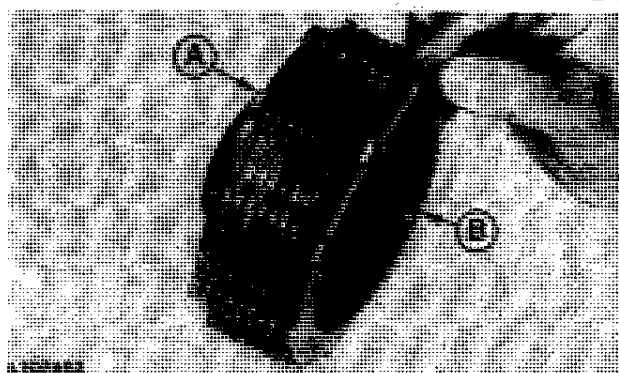
Force piston out of housing with compressed air.



L107302-LA75040AE-091184

ASSEMBLING PTO CLUTCH

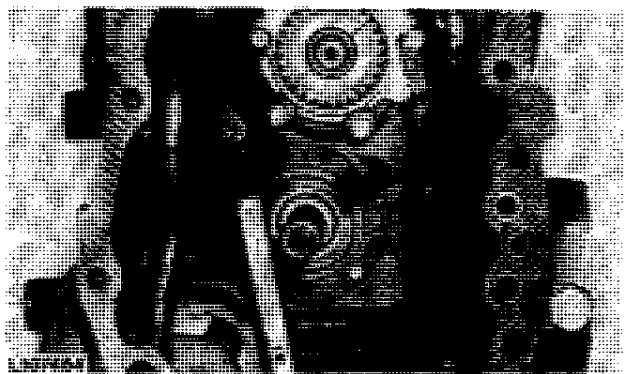
Alternately assemble the correct number of disks on clutch hub so that there is one internally splined disk on the backing plate side (B) and one externally splined disk on the piston side (A).



L107463-LA75040AE-091184

INSTALLING PTO BRAKE

Tighten cap screws to 50 Nm (35 ft-lb).



L107464-LA75040AE-091184

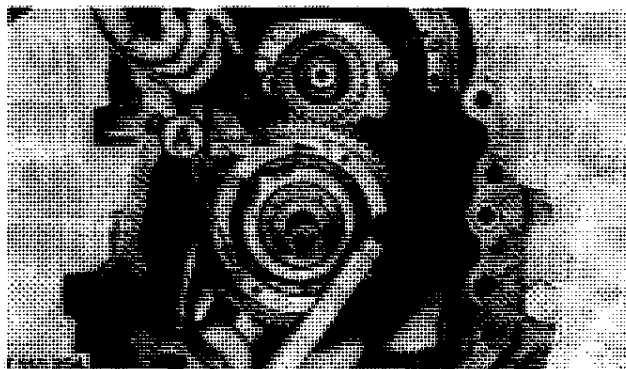
INSTALLING PTO CLUTCH

NOTE: Do not install ring gear until PTO clutch has been installed.

Tighten hex. socket screws (A) to 75 Nm (55 ft-lb).

Install Hi-Lo shift unit and drive for mechanical front wheel drive.

Join tractor between clutch housing and transmission case as described in Section 10, Group 25.



L110204-LA75040AE-091184

SPECIFICATIONS

Dimensions of New Parts

Inner dia. of bushing seated in transmission case	34.95 to 35.02 mm (1.376 to 1.379 in.)
Dia. of PTO drive shaft journal for bushing	34.87 to 34.90 mm (1.373 to 1.374 in.)
Inner dia. of bushing in PTO drive shaft	19.10 to 19.17 mm (0.752 to 0.755 in.)
Dia. of PTO shaft journal	19.04 to 19.06 mm (0.749 to 0.750 in.)
Preload of taper roller bearings in bearing quill (heavy-duty type)	0 to 0.05 mm (0 to 0.002 in.)

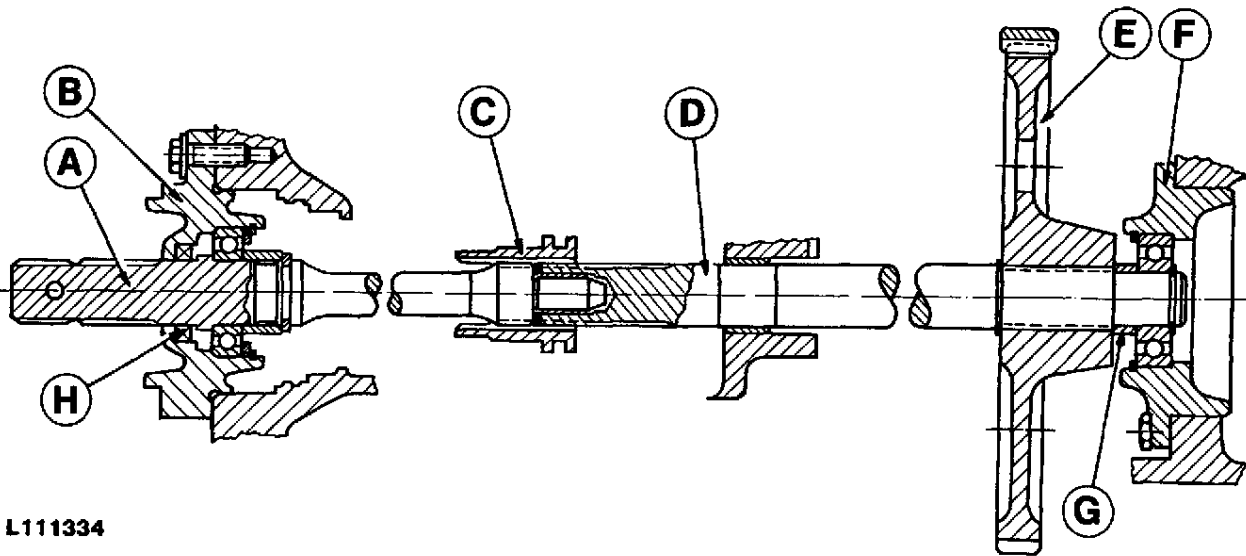
MOTZAPFW-LB35065AE-010888

TORQUES FOR HARDWARE

Bearing quill to transmission case, cap screws	115 Nm (85 ft-lb)
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MOTZAPFW-LB35065BE-010888

CONTINUOUS RUNNING PTO (540 RPM), SECTIONAL VIEW



L111334

A-PTO shaft
B-Rear bearing quill
C-Shifter collar

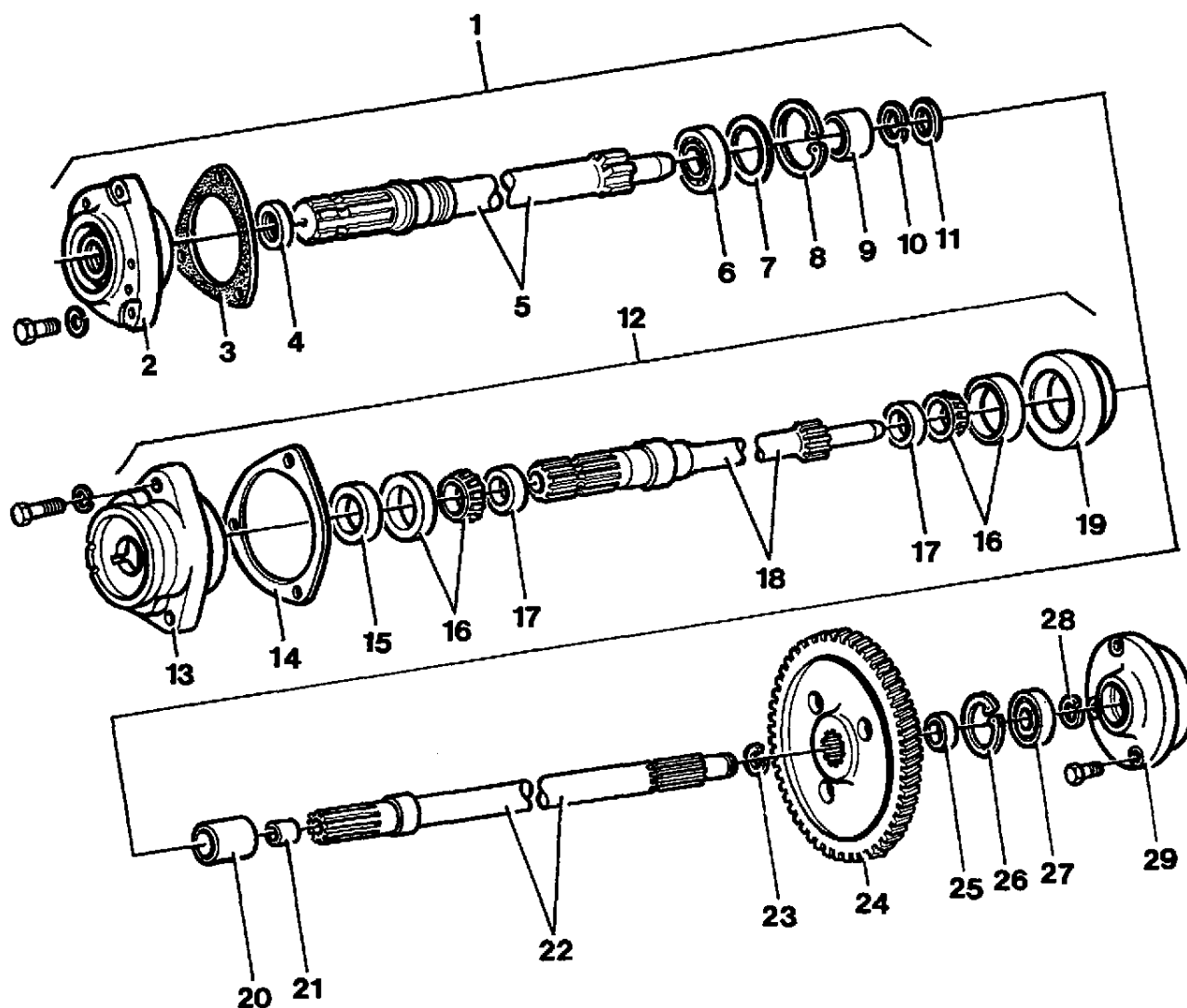
D-PTO drive shaft
E-PTO gear
F-Front bearing quill

G-Spacer bushing
H-Oil seal

NOTE: The standard rear bearing is shown in the above illustration.

L111334-LB35085AE-010888

CONTINUOUS RUNNING PTO (540 RPM), EXPLODED VIEW



L125230

1-Standard PTO
2-Bearing quill
3-Gasket
4-Oil seal
5-PTO shaft
6-Ball bearing
7-Washer
8-Snap ring

9-Spacer bushing
10-Snap ring
11-Thrust washer
12-Heavy-duty PTO
13-Bearing quill
14-Shims (use as reqd.)
15-Oil seal

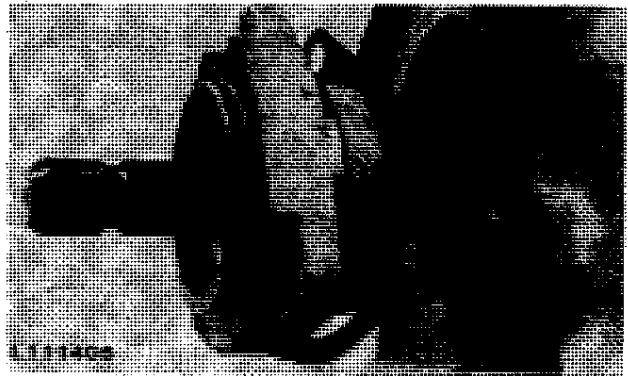
16-Taper roller bearing
17-Spacers
18-PTO shaft
19-Bearing sleeve
20-Bushing
21-Bushing
22-PTO drive shaft

23-Snap ring
24-Gear
25-Spacer bushing
26-Snap ring
27-Ball bearing
28-Snap ring
29-Bearing quill

L125230-LB35065AE-010888

REMOVING PTO

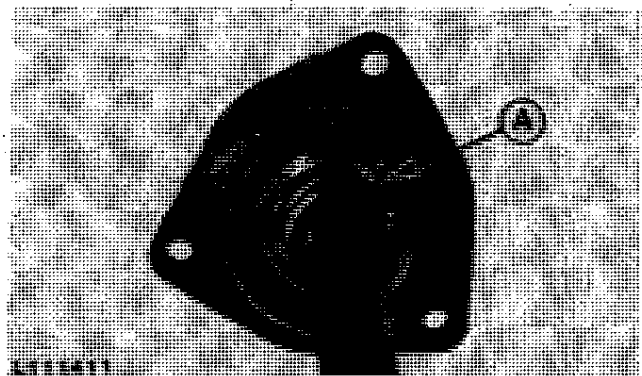
Drain transmission oil.
PTO shift mechanism in "disengaged" position.
Remove bearing quill attaching screws and remove bearing quill together with PTO shaft.



L111408-LB35065AE-010287

REPLACING OIL SEAL AND BALL BEARING

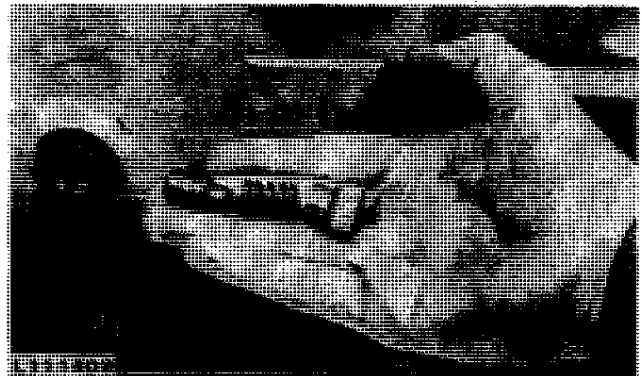
Remove snap ring (A) and lift out parts.



L111411-LB35065AE-010287

REMOVING PTO SHIFT MECHANISM

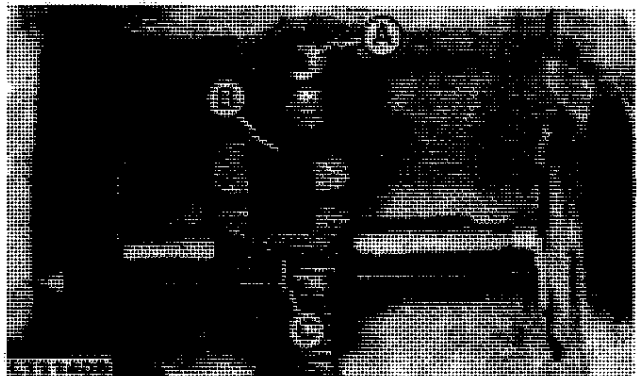
Remove rockshaft, see Section 10, Group 25.
Remove countershaft, see Section 50, Group 45.
Remove shifter shaft lock.



L111409-LB35065AE-010287

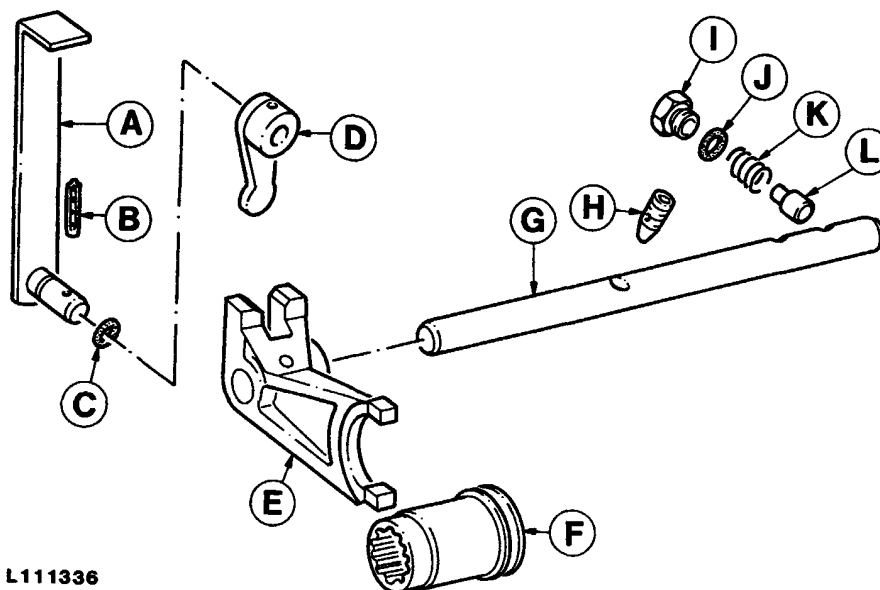
Drive out spring pin (A) and remove screw (C). Remove shift lever (B), shift fork and shift rod.

A-Spring pin
B-Shift lever
C-Screw



L111408-LB35065AE-010287

PTO SHIFT LINKAGE, EXPLODED VIEW



L111336

A-Shift lever
B-Spring pin
C-O-ring
D-Shift lever

E-Shift fork
F-Shift sleeve
G-Shift rod
H-Screw

I-Plug
J-O-ring
K-Spring
L-Pin

L111336-LB35065AE-010287

INSTALLING PTO SHAFT SHIFT LINKAGE

NOTE: Install PTO shifter shaft lock last.

Install countershaft, see Section 50, Group 45.
Install rockshaft, see Section 10, Group 25.

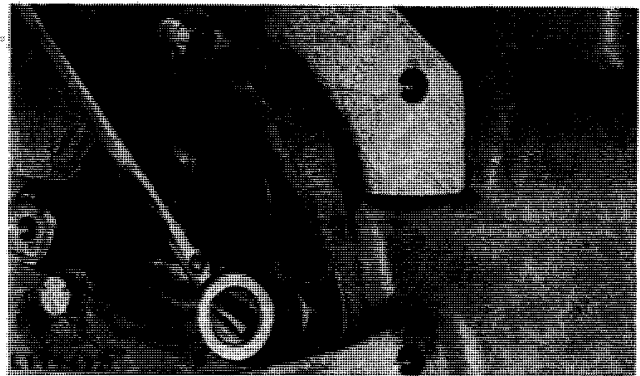
MOTZAPFW-LB35065AE-010287

INSTALLING PTO SHAFT

Install PTO shaft with bearing quill.

Tighten cap screws to 115 Nm (85 ft-lb).

NOTE: Make sure that thrust washer (standard PTO) and shifter sleeve are fitted correctly.



L111412-LB35065AE-010888

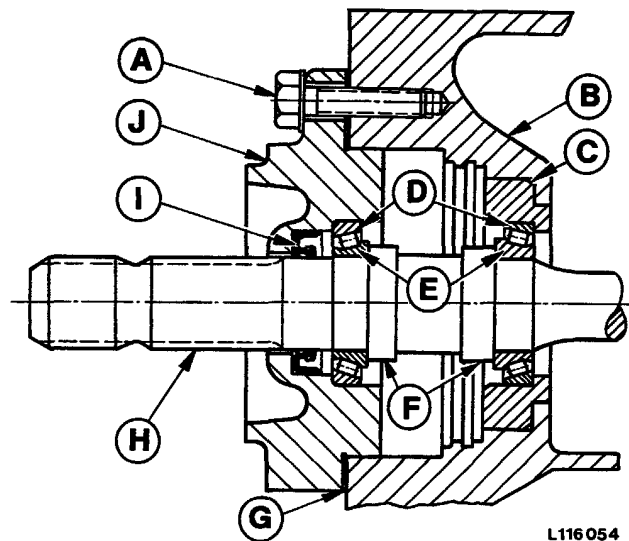
ADJUSTING TAPER ROLLER BEARINGS (Heavy-Duty PTO)

Install sufficient shims (G) to obtain a measurable axial play.

Remove a number of shims to give a preload of 0 to 0.05 mm (0 to 0.002 in.).

NOTE: Install paper and steel shims (G) alternately, whereby the first and last must be a paper shim.

- | | |
|------------------------------|-----------------|
| A—Cap screw (3 used) | F—Spacers |
| B—Transmission case | G—Shims |
| C—Bearing sleeve | H—PTO shaft |
| D—Taper roller bearing cups | I—Oil seal |
| E—Taper roller bearing cones | J—Bearing quill |



L116 054

L116054-LB35065AE-010888

REMOVING PTO DRIVE SHAFT

Separate tractor between transmission case and clutch housing, see Section 10, Group 25.

NOTE: Reinstall PTO shaft if already removed.

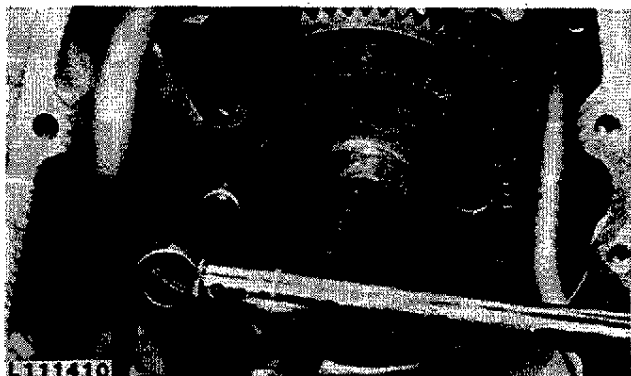
Shift PTO shift mechanism to "engaged" position. Remove the three cap screws (A) and remove PTO gear with shaft and bearing quill.



L111407-LB35065AE-010287

INSTALLING PTO DRIVE SHAFT

Install PTO drive shaft together with bearing quill and gear.



L111410-LB35065AE-010287

FINAL ASSEMBLY

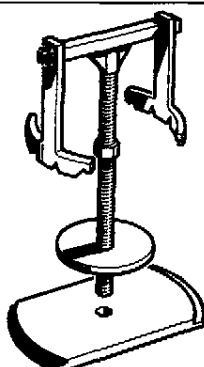
Join tractor between transmission case and clutch housing, see Section 10, Group 25.

Fill transmission with oil.

MOTZAPFW-LB35065CE-010287

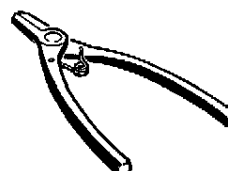
SPECIAL TOOLS

KML 10 005



(A)

JDT-1



(B)

L108002

**A—Removing and installing
disk clutch compression
spring**

**B—Removing and installing
snap rings**

L108002-LA75015AE-091184

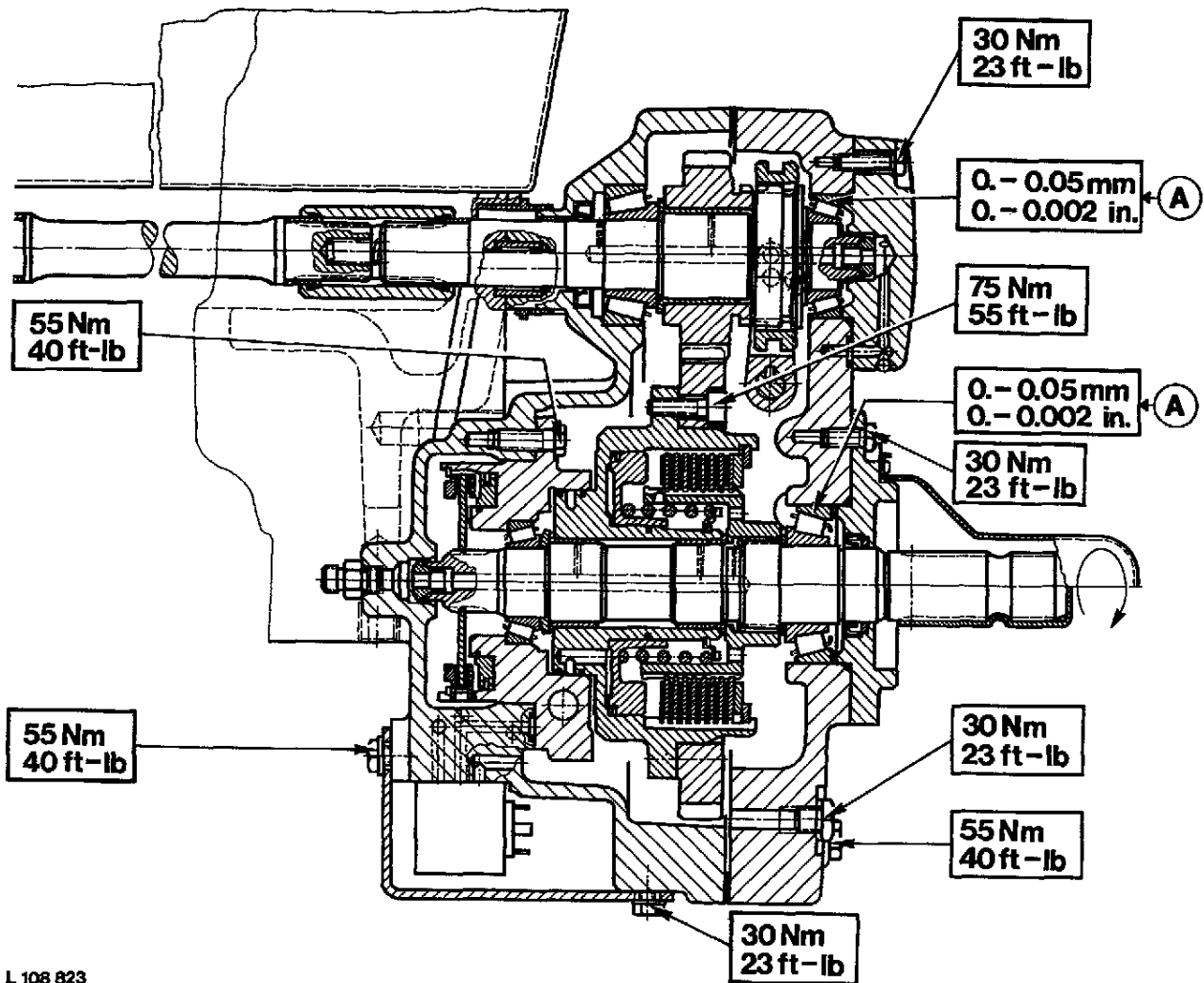
SPECIFICATIONS

Dimensions of New Parts

Thickness of one external splined disk	2.3 mm (0.09 in.)
Thickness of one internal splined disk	2.44 to 2.54 mm (0.096 to 0.1 in.)
Thickness of brake disk with lining	5.9 to 6.1 mm (0.232 to 0.240 in.)
Disk clutch piston compression spring	
– Free length	98 mm (3.88 in.)
– Tension at a spring length of 46 mm (1.80 in.)	530 to 650 N (117 to 143 lb)
Modulation valve compression springs	
– Free length	54 mm (2.13 in.)
– Tension at a spring length of 31 mm (1.22 in.)	123 to 151 N (27.5 to 40 lb)
– Free length	87 mm (3.42 in.)
– Tension at a spring length of 48 mm (1.88 in.)	53 to 65 N (12 to 14.5 lb)

FRZAPFW-LA75045AE-091184

TORQUES FOR HARDWARE AND REPAIR ADJUSTMENT DATA
(Clockwise Running Front PTO)



L 108 823

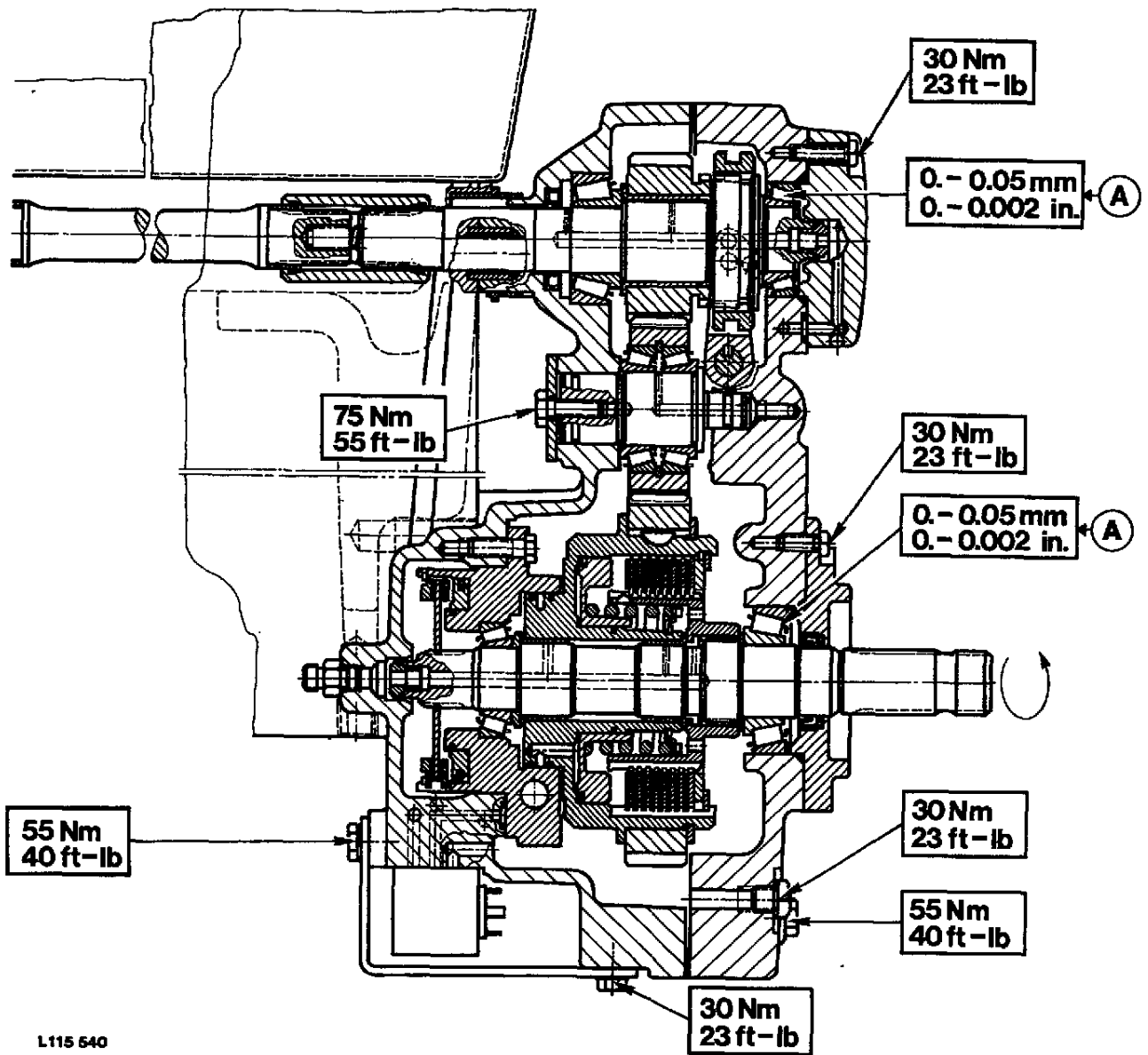
A—Preload of taper roller bearings

Intermediate gear shaft, cap screw 75 Nm (55 ft-lb)

NOTE: The rotation arrows and terms "clockwise" and "counterclockwise" are as seen with tractor in direction of forward travel.

L108823-LB35070AE-010287

TORQUES FOR HARDWARE AND REPAIR ADJUSTMENT DATA
(Counterclockwise Running Front PTO)



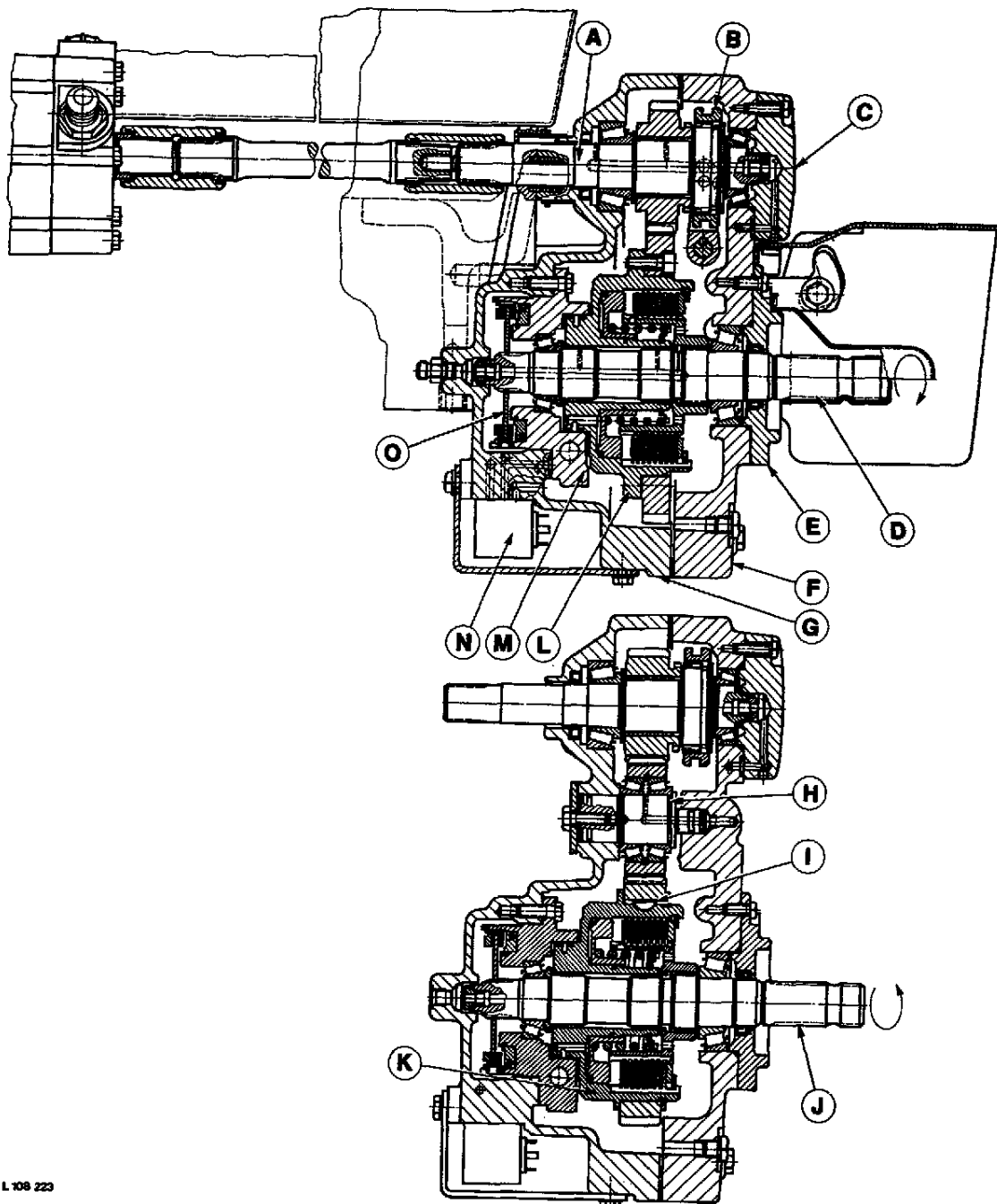
L115 540

A-Preload of taper roller bearings

NOTE: The rotation arrows and terms "clockwise" and "counterclockwise" are as seen with tractor in direction of forward travel.

L115540-LB35070AE-010267

FRONT PTO, SECTIONAL VIEW



L 108 223

A-Input shaft
B-Shifter sleeve
C-Bearing quill
D-PTO shaft (clockwise)

E-Bearing quill
F-Front PTO shaft housing
G-Rear PTO shaft housing

H-Intermediate gear shaft
I-Woodruff key
J-PTO shaft (counterclockwise)
K-Clutch hub

L-Clutch hub
M-Oil manifold
N-Solenoid valve
O-Brake disk

L108223-LA75045AE-091184

Front PTO

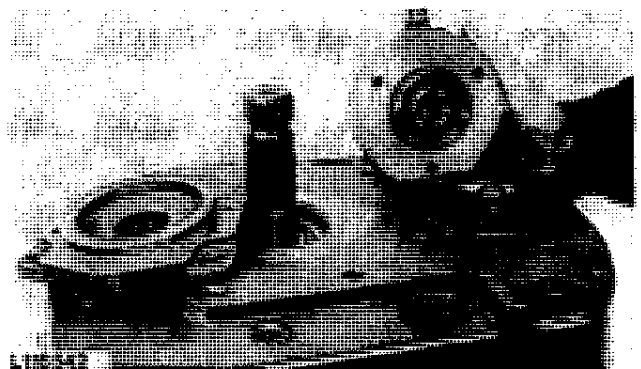
REMOVING FRONT PTO SHAFT

Remove front PTO shaft, see Section 10, Group 25.

FRZAPFW-LA75045BE-091184

REMOVING BEARING QUILL

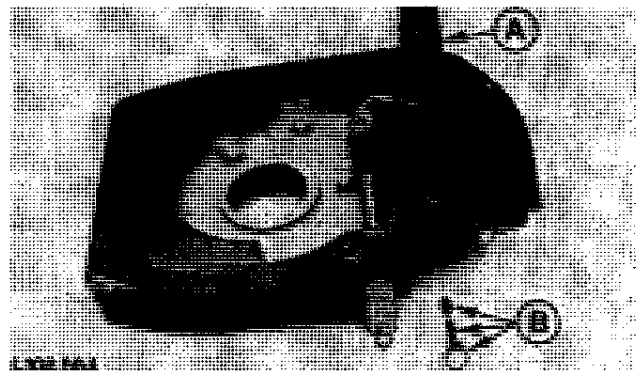
NOTE: Pay attention to both spacer washers when removing both bearing quills.



L115542-LB35070AE-010287

REMOVING INPUT SHAFT

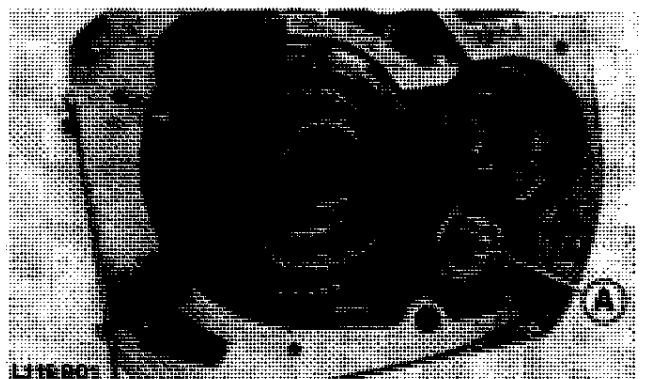
Remove shifter fork detent (B) and lift out input shaft (A).



L109664-LA75045AE-091184

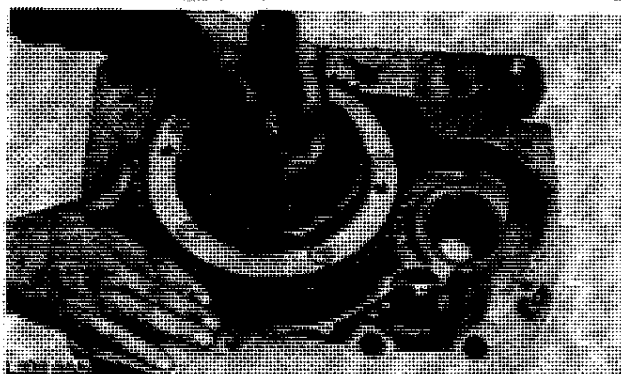
REMOVING INTERMEDIATE GEAR SHAFT (Counterclockwise Running Front PTO)

A-Intermediate gear shaft



L119901-LB25055AE-010488

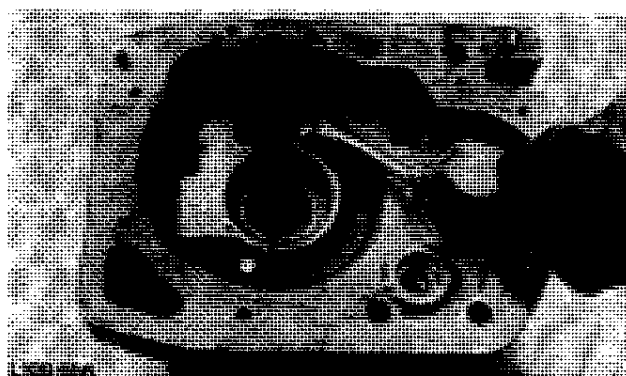
REMOVING PTO CLUTCH



L108865-LA75045AE-091184

REMOVING OIL MANIFOLD WITH PTO BRAKE

Using two attaching screws, press oil manifold with PTO brake from rear PTO housing.

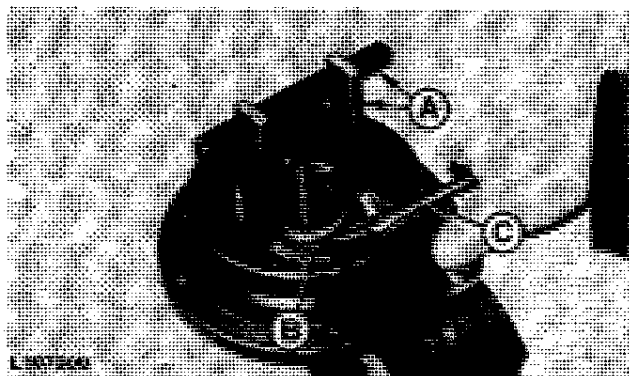


L108866-LA75045AE-091184

REMOVING DISK CLUTCH COMPRESSION SPRING

Remove clutch hub with clutch disks.

Using special tool KML10005 (A), compress the compression spring and remove snap ring (B) with special tool JDT-1 (C).



L107300-LA75040AE-091184

REMOVING PTO CLUTCH PISTON

Remove piston from clutch drum with compressed air.

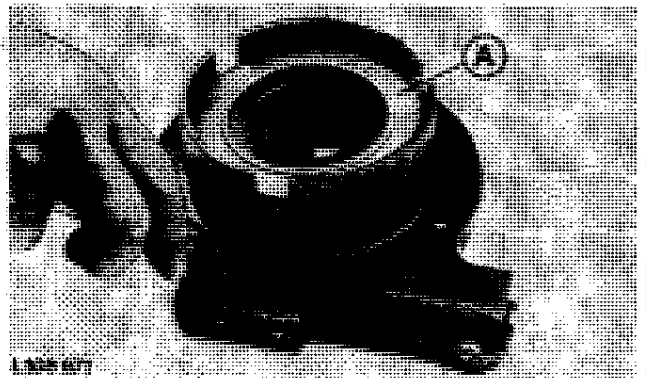
NOTE: Carefully guide piston seal ring past snap ring groove (A).



L116148-LB35070AE-010287

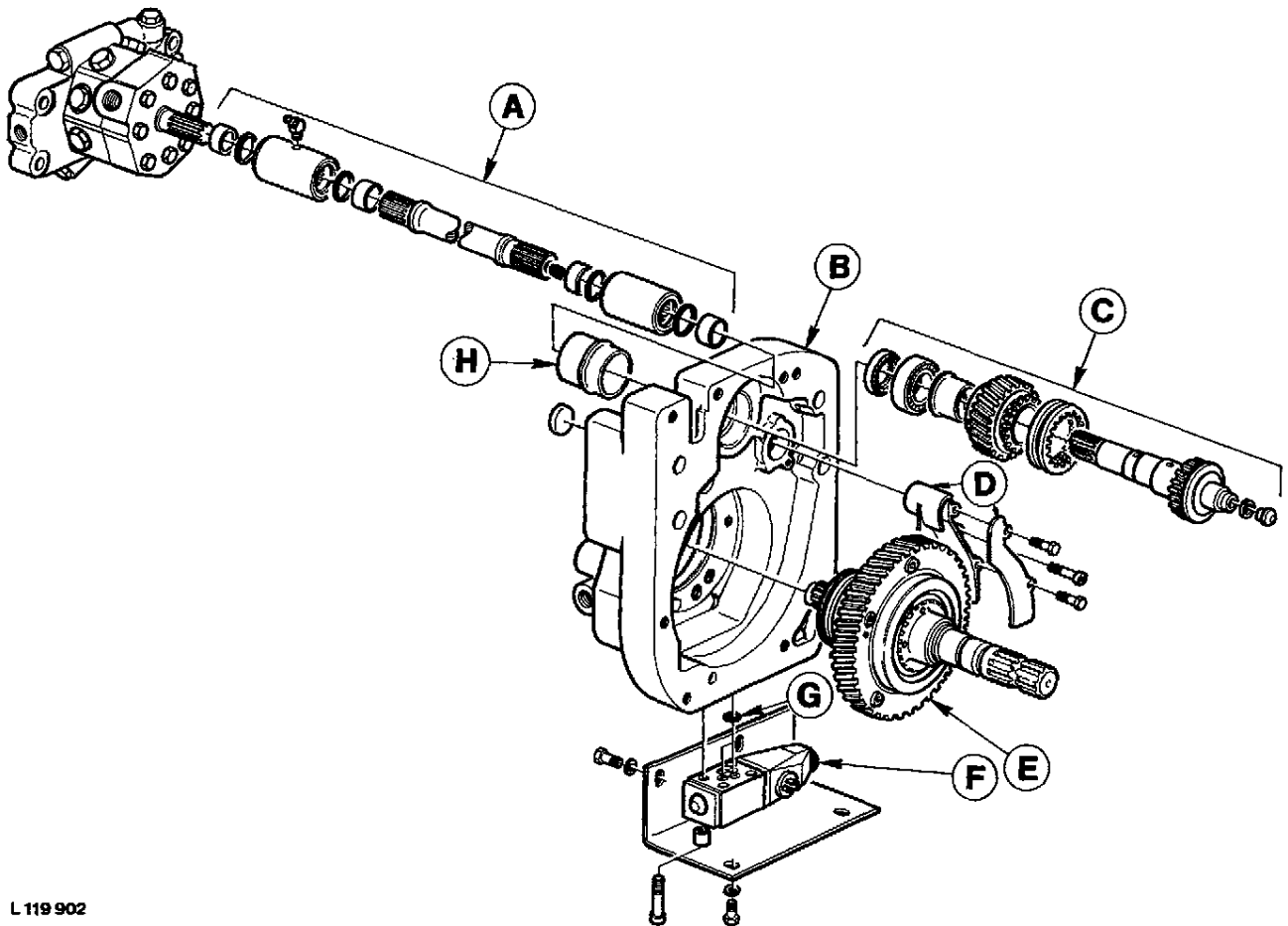
REMOVING PTO BRAKE PISTON

Press piston (A) out of housing with compressed air.



L108671-LA75045AE-091184

FRONT PTO (CLOCKWISE RUNNING), EXPLODED VIEW



L 119 902

A—Drive shaft assembly
B—Rear PTO shaft housing
C—Input shaft assembly

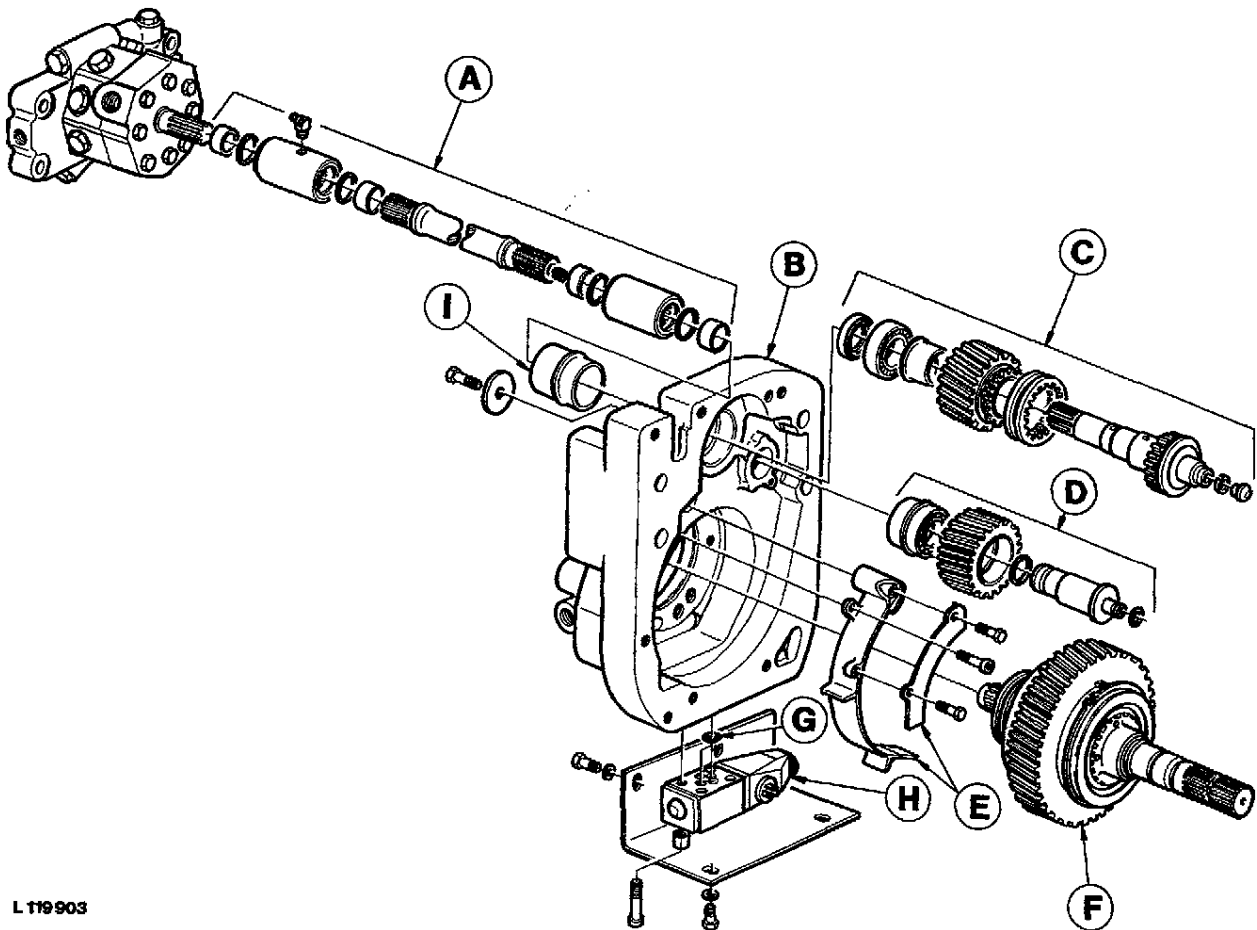
D—Oil baffle
E—PTO shaft assembly

F—Solenoid valve
G—O-ring (4 used)
H—Plastic bushing

L119902-LB25055AE-010488

Front PTO

FRONT PTO (COUNTERCLOCKWISE RUNNING), EXPLODED VIEW



L 119903

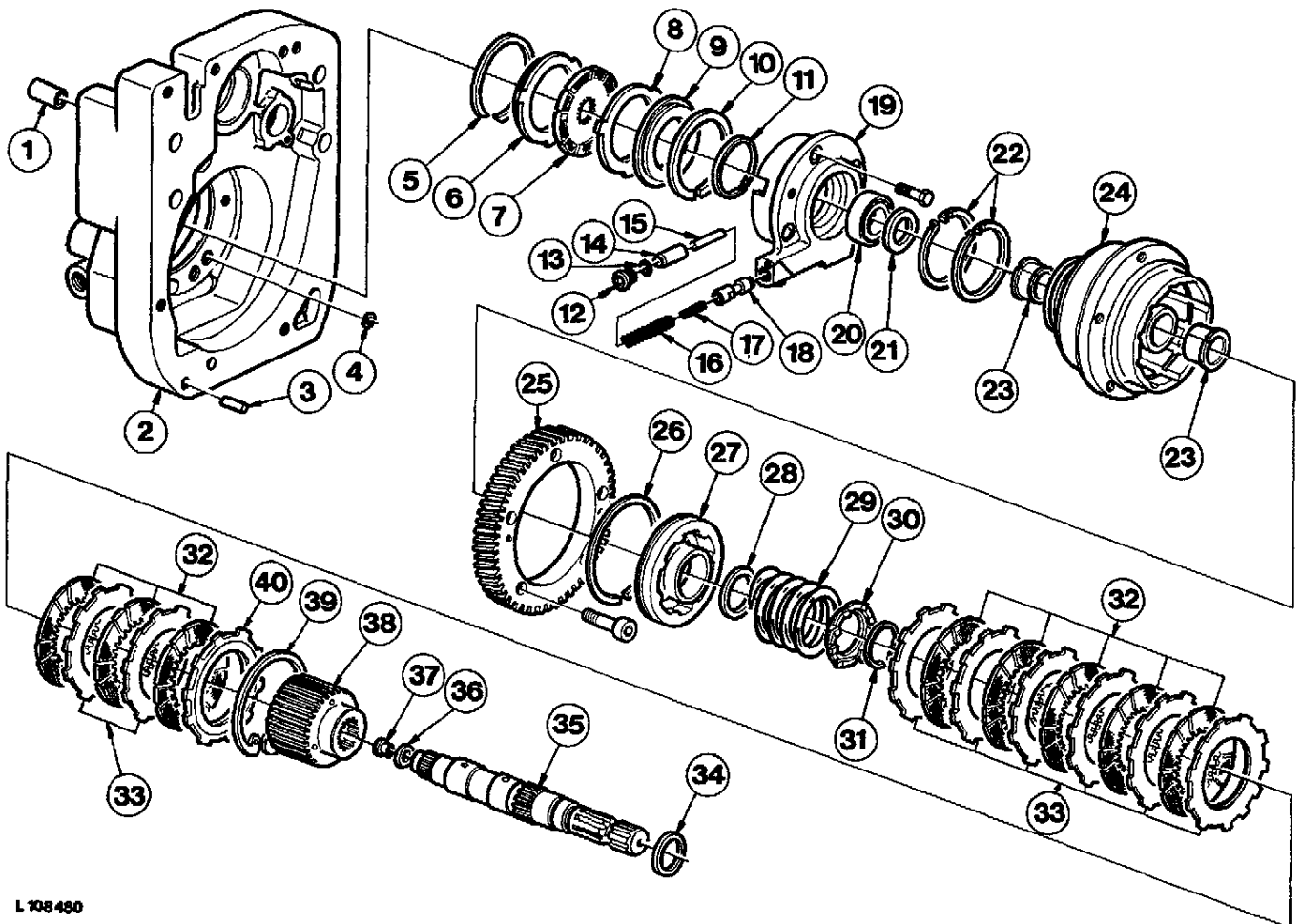
A—Drive shaft assembly
B—Rear PTO shaft housing
C—Input shaft assembly

D—Intermediate shaft assembly
E—Oil baffle
F—PTO shaft assembly

G—O-ring (4 used)
H—Solenoid valve
I—Plastic bushing

L119903-LB25055AE-010488

PTO CLUTCH AND BRAKE (CLOCKWISE), EXPLODED VIEW



L 108480

- 1-Spacer sleeve
- 2-Rear PTO housing
- 3-Pin (2 used)
- 4-Seal ring (3 used)
- 5-Snap ring
- 6-Brake plate
- 7-Brake disk
- 8-Brake plate
- 9-Brake piston
- 10-Seal ring
- 11-Seal ring

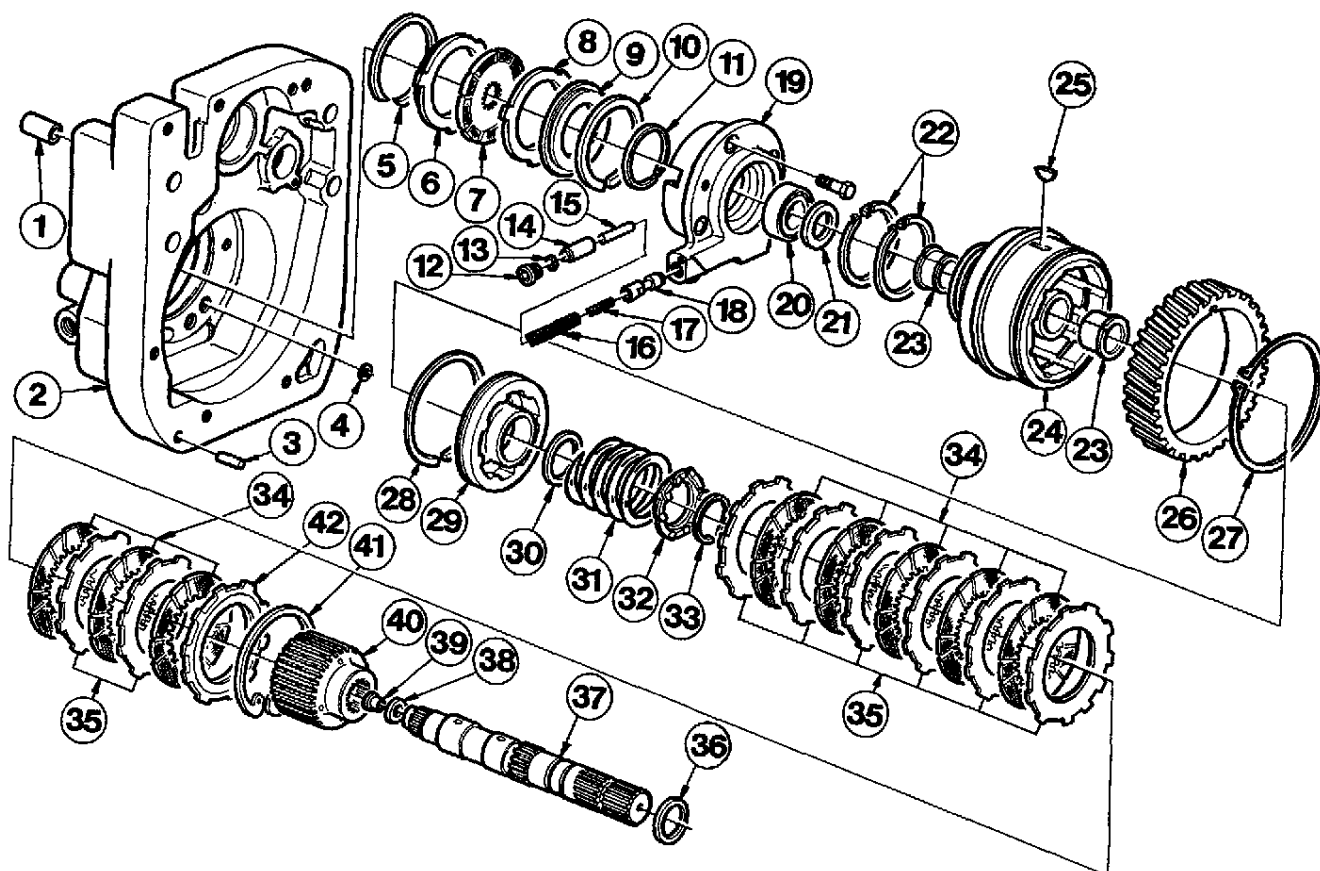
- 12-Plug
- 13-O-ring
- 14-Piston
- 15-Pin
- 16-Spring
- 17-Spring
- 18-Control valve
- 19-Oil manifold
- 20-Taper roller bearing
- 21-Spacer washer

- 22-Seal rings
- 23-Bushings
- 24-Clutch drum
- 25-Ring gear
- 26-Seal ring
- 27-PTO clutch piston
- 28-Seal ring
- 29-Compression spring
- 30-Spring plate
- 31-Snap ring
- 32-Internal splined disks (8 used)

- 33-External splined disks (8 used)
- 34-Back-up washer
- 35-PTO shaft
- 36-Seal ring
- 37-Seal ring holder
- 38-Clutch hub
- 39-Snap ring
- 40-External splined backing plate

L108480-LB25055AE-000488

PTO CLUTCH AND BRAKE (COUNTERCLOCKWISE), EXPLODED VIEW



L 119 904

1-Spacer sleeve (4 used)
2-Rear PTO housing
3-Pin (2 used)
4-Seal ring (3 used)
5-Snap ring
6-Brake plate
7-Brake disk
8-Brake plate
9-Brake piston
10-Seal ring
11-Seal ring

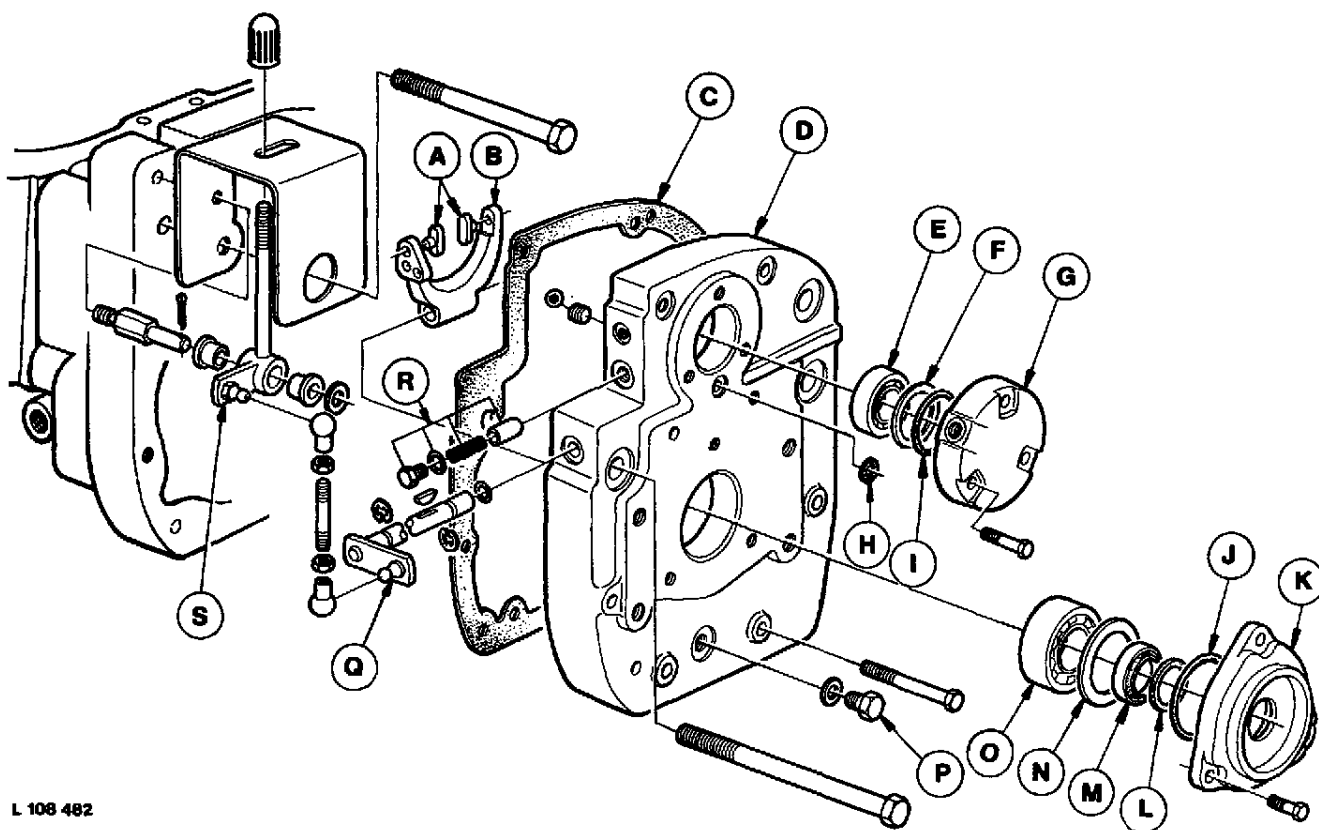
12-Plug
13-O-ring
14-Piston
15-Pin
16-Spring
17-Spring
18-Control valve
19-Oil manifold
20-Taper roller bearing
21-Spacer washer
22-Seal rings

23-Bushings
24-Clutch drum
25-Woodruff key
26-Ring gear
27-Snap ring
28-Seal ring
29-PTO clutch piston
30-Seal ring
31-Compression spring
32-Spring plate
33-Snap ring

34-Internal splined disks (8 used)
35-External splined disks (8 used)
36-Back-up washer
37-PTO shaft
38-Seal ring
39-Seal ring holder
40-Clutch hub
41-Snap ring
42-External splined backing plate

L119904-LB25055AE-000488

FRONT PTO HOUSING, EXPLODED VIEW



L 108 482

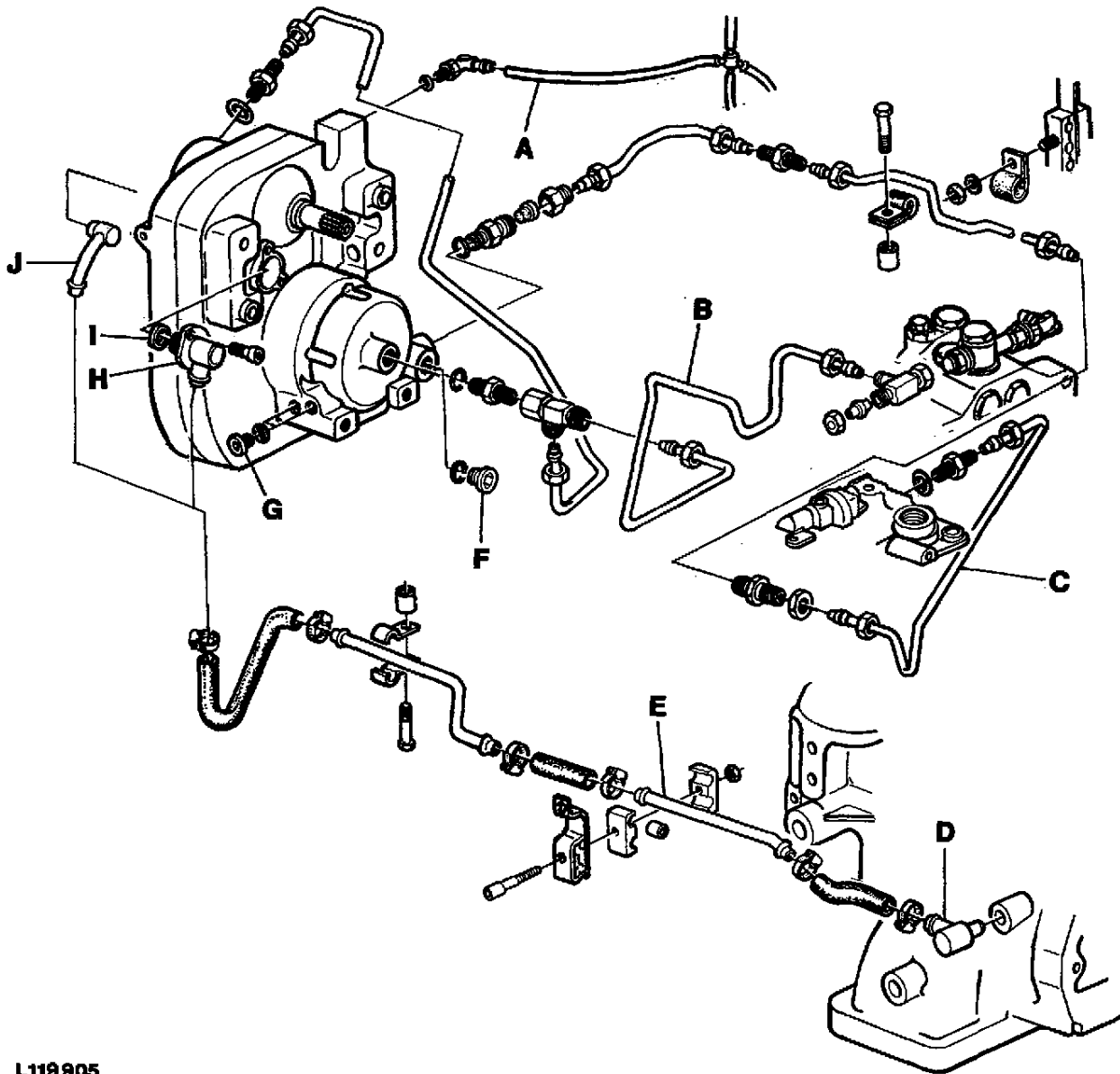
A-Guide shoes
B-Shifter fork
C-Gasket
D-Front PTO housing
E-Taper roller bearing
F-Spacer washers
(use as required)

G-Bearing quill
H-Seal ring
I-O-ring
J-O-ring
K-Bearing quill
L-Seal ring
M-Seal ring

N-Spacer washers
(use as required)
O-Taper roller bearing
P-Oil drain plug
Q-Shifter shaft
R-Detent assembly
S-Shift lever

L108482-LB25055AE-000488

OIL LINES



L119905

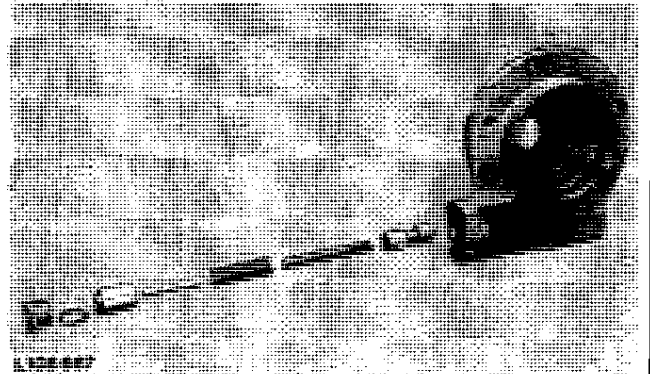
A-Leakage oil line
B-Lubricating oil line
C-Pressure oil line
D-Elbow fitting

E-Return oil line
F-Test plug (PTO clutch)
G-Test plug (PTO brake,
rear plug)

H-Elbow fitting (with
clockwise PTO)
I-Seal ring
J-Elbow fitting
(with counterclockwise PTO)

L119905-LB25055AE-010488

INSTALLING MODULATION VALVE



L108667-LA75045AE-260265

INSTALLING OIL MANIFOLD WITH PTO BRAKE

NOTE: Make sure that seal rings (A) are inserted.

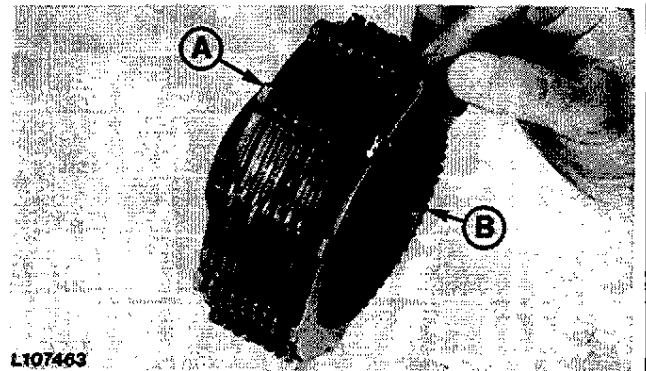
Tighten cap screws to 55 Nm (40 ft-lb).



L108668-LB35070AE-010888

ASSEMBLING PTO CLUTCH

Assemble alternately the correct number of disks on clutch hub so that there is one internal splined disk on backing plate (A) side and one external splined disk on the piston side (B).



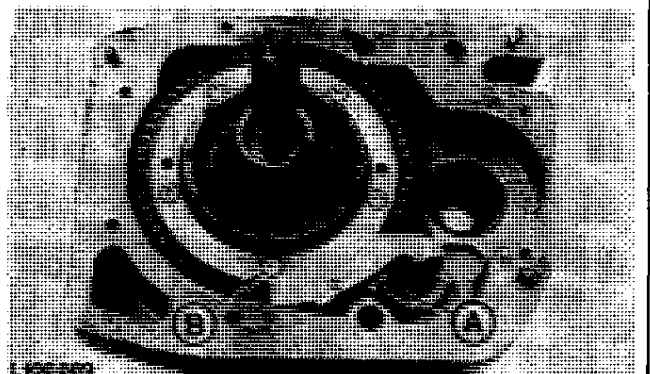
L107463

L107463-LA75040AE-091184

INSTALLING PTO CLUTCH

Clockwise Running PTO

Before installing PTO clutch tighten hex. socket screws (B) to 75 Nm (55 ft-lb). Coat threads of hex. socket screw (A) with LOCTITE 242 (L41745) and tighten.

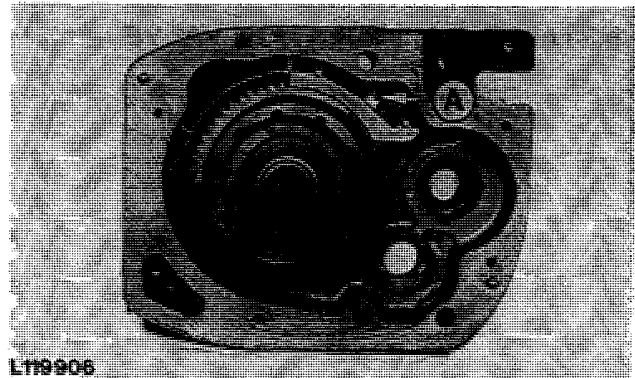


L108669-LB35070AE-000287

INSTALLING PTO CLUTCH

Counterclockwise Running PTO

Coat threads of hex. socket screw (A) with LOCTITE 242 (L41745) and tighten.



L119906

L119906-LB25055AE-010488

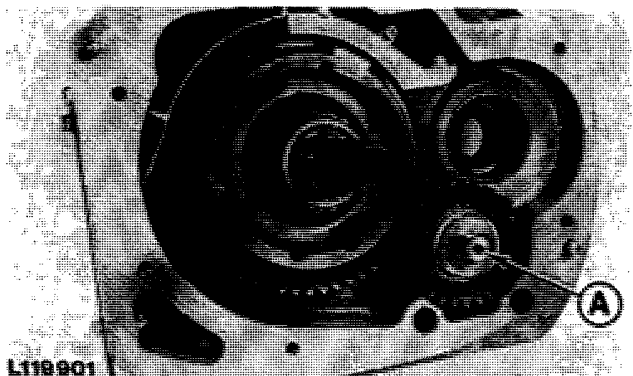
INSTALLING INTERMEDIATE GEAR SHAFT

Counterclockwise Running PTO

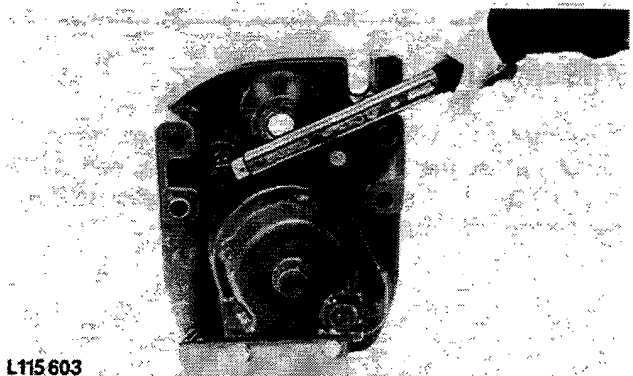
Install intermediate gear shaft (A).

Tighten cap screw to 75 Nm (55 ft-lb).

NOTE: Intermediate gear shaft (A) is lubricated via an oil bore in front PTO housing. When installing a new front PTO housing, remove plug from oil bore.



L119901



L115603

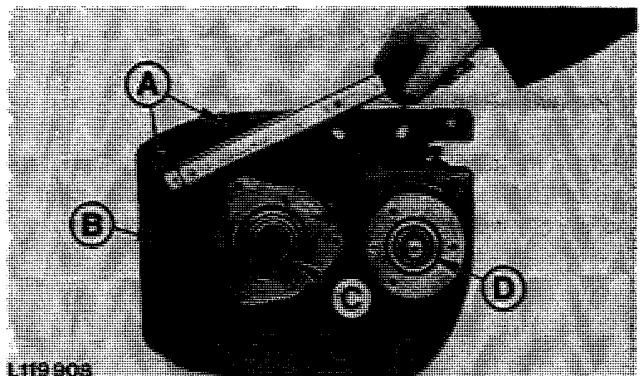
L119901,L115603-LB35070AE-010888

ASSEMBLING FRONT PTO

Tighten cap screws (A) of PTO shaft housing to 55 Nm (40 ft-lb).

Tighten oil drain plug (B) to 30 Nm (23 ft-lb).

Install bearing cups (C and D).



L119908

L119908-LB25055AE-010488

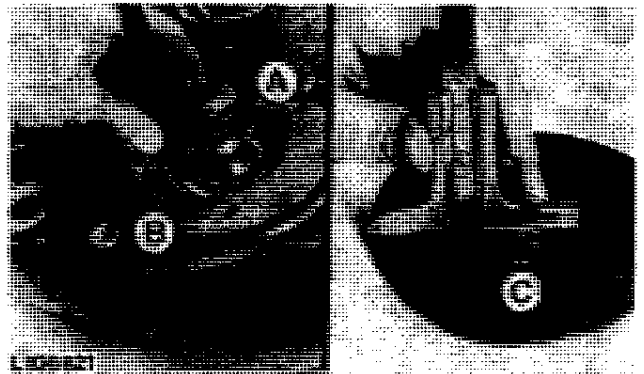
DETERMINING PRELOAD OF INPUT SHAFT AND PTO SHAFT TAPER ROLLER BEARINGS

Measure distance between outer race of bearing (A) and facing of PTO shaft housing (B).

Measure bearing quill collar height.

Calculate difference between both dimensions plus preload of 0 to 0.05 mm (0 to 0.002 in.).

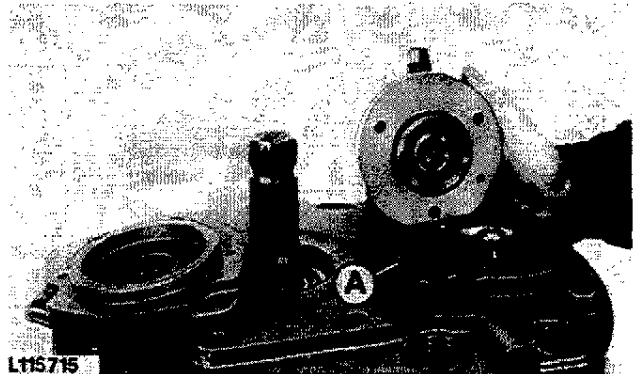
Place shim pack between bearing quill and outer race of bearing with a thickness corresponding to determined value.



L108821-LA75045AE-000285

INSTALLING BEARING QUILL

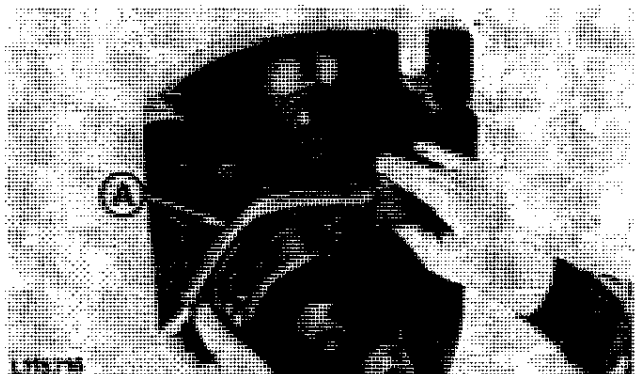
Install oil seal (A). Tighten cap screws of bearing quills to 30 Nm (23 ft-lb).



L115715-LB35070AE-010287

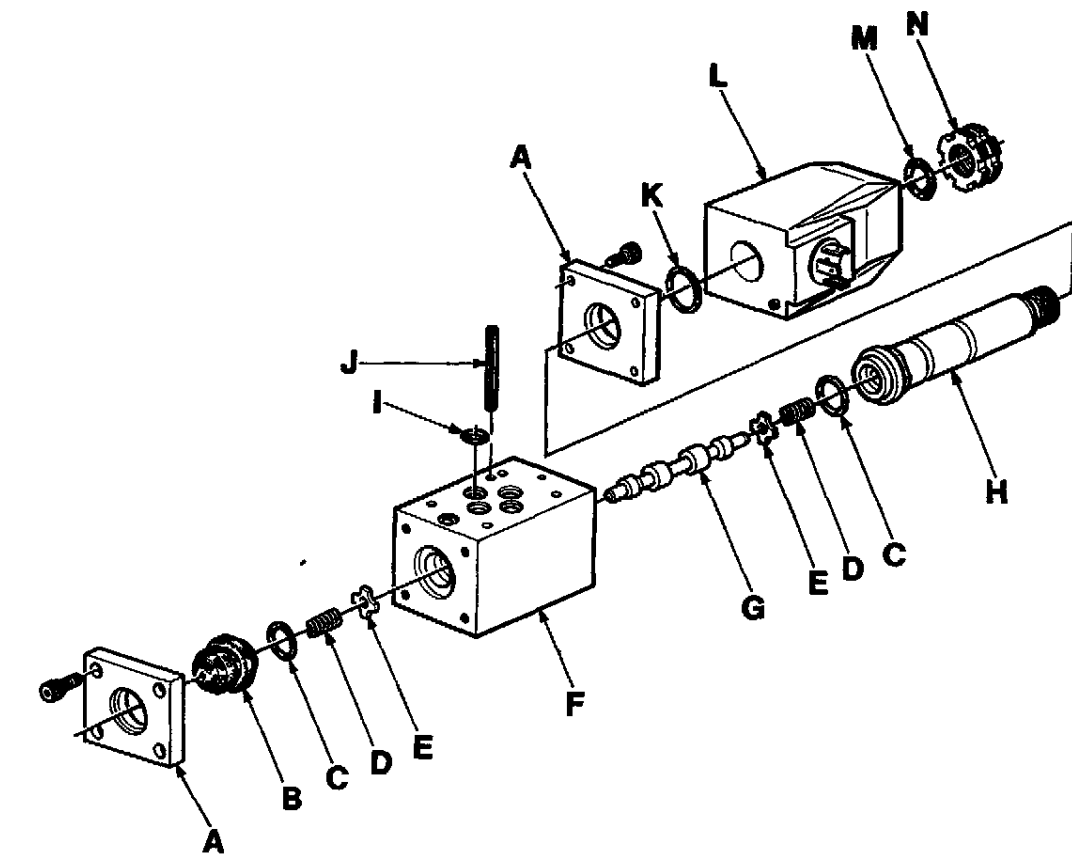
INSTALLING CONNECTING PIPE (Counterclockwise Running PTO)

Coat connecting pipe (A) with Loctite 242 (L41475) and insert in PTO housing.



L115716-LB35070AE-010287

SOLENOID VALVE, EXPLODED VIEW



L119 907

A-Flange
B-Cap
C-O-ring
D-Spring

E-Centering disk
F-Spool housing
G-Spool

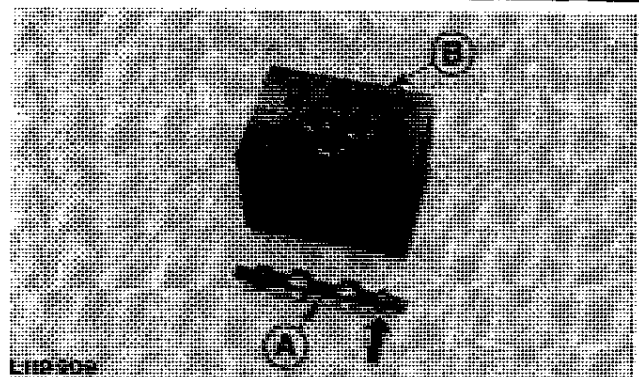
H-Iron core assy.
I-O-ring (4 used)
J-Spring pin

K-O-ring
L-Solenoid
M-O-ring
N-Slotted nut

L119907-LB25055AE-010488

ASSEMBLING SOLENOID VAVE

NOTE: Install spool (A) in housing with the small cam (see arrow) on the side of spring pin (B).



L119 907

L119909-LB25055AE-010488

Front PTO

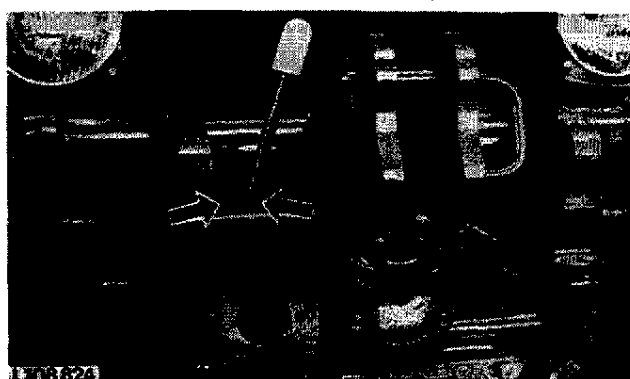
INSTALLING FRONT PTO SHAFT

Install front PTO shaft, see Section 10, Group 25.

FRZAPFW-LA75045CE-260285

ADJUSTING HANDSHIFT LEVER

After installing front PTO shaft, adjust handshift lever so that it does not contact with ends of elongated hole when in both shift positions.



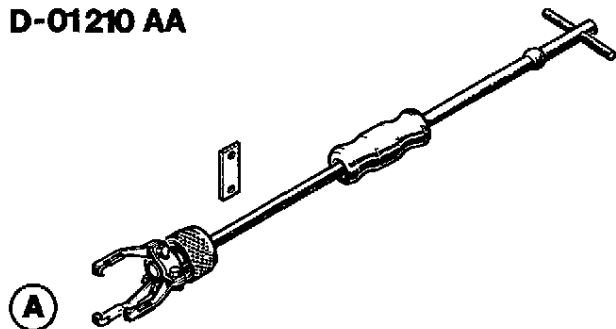
L108824-LA75045AE-001184

Group 75

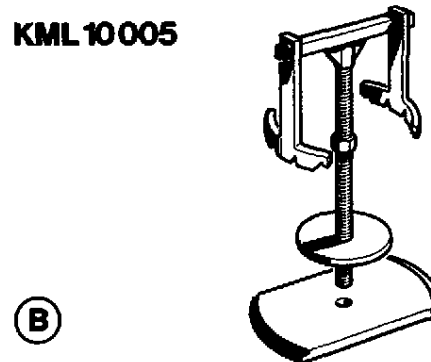
FRONT WHEEL DRIVE U.J. DRIVE SHAFT AND DISK CLUTCH

SPECIAL TOOLS

D-01210 AA



KML 10005



L112 404

A—Removing clutch shaft

**B—Removing and installing
Belleville springs**

L112404-LA95050AE-001185

SPECIFICATIONS

Dimensions of New Parts

I.D. of release piston	57.13 to 57.18 mm (2.249 to 2.251 in.)
O.D. of release piston	141.30 to 141.56 mm (5.563 to 5.573 in.)
Thickness of an external splined disk	1.30 to 1.40 mm (0.051 to 0.055 in.)
Thickness of an internal splined disk	1.38 to 1.48 mm (0.054 to 0.058 in.)
Height of a Belleville spring plate (not under pressure)	7.4 mm (0.291 in.)
Adjustment of taper roller bearings:	
– Preload	0.02 mm (0.0008 in.)
– Up to an axial play of	0.03 mm (0.0012 in.)
Disk clutch slips at a torque of	
– Tractors 2250, 2450, 2650 and 2650N	880 Nm (650 ft-lb)
– Tractor 2850	1000 Nm (740 ft-lb)

MFWD-LB35075AE-010888

TORQUES FOR HARDWARE

Universal-jointed drive shaft to drive
hub of front wheel drive axle, hex. nuts 75 Nm (55 ft-lb)

MFWD-LB25060BE-010886

REMOVING U.J. DRIVE SHAFT ANTI-WRAP GUARDS

When equipped, remove front and rear anti-wrap
guards.

A—Anti-wrap guard
B—Universal-jointed
drive shaft
C—Cap screws



L108529-LA75050AE-281185

REMOVING UNIVERSAL-JOINTED DRIVE SHAFT

Remove attaching nuts (A) from flange of universal-
jointed drive shaft (B).

Pull universal-jointed drive shaft from rear clutch
shaft.



L108912-LA71025AE-120285

REMOVING SNAP RINGS

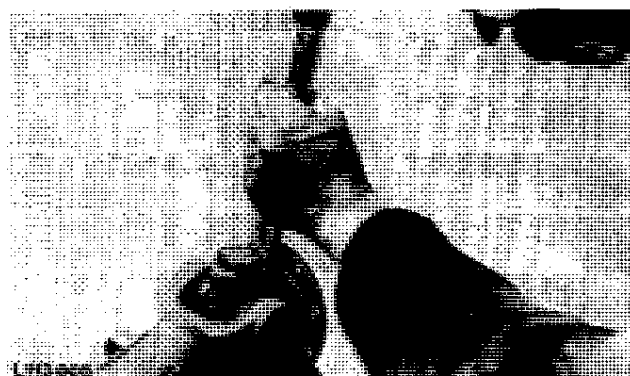
Remove snap ring (A) from each side of universal joint.



L113004-LA95050AE-281185

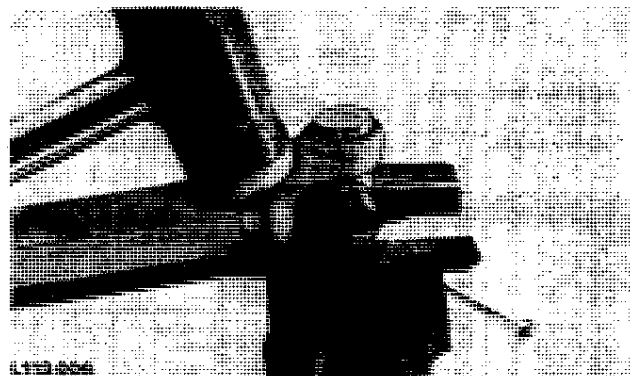
DRIVING BEARING CUPS OUT OF CONNECTING FLANGE

NOTE: Position drive shaft fork on a vice so that connecting flange can move freely.



L113005-LA85050AE-281185

DRIVING BEARING CUPS OUT OF U.J. DRIVE SHAFT

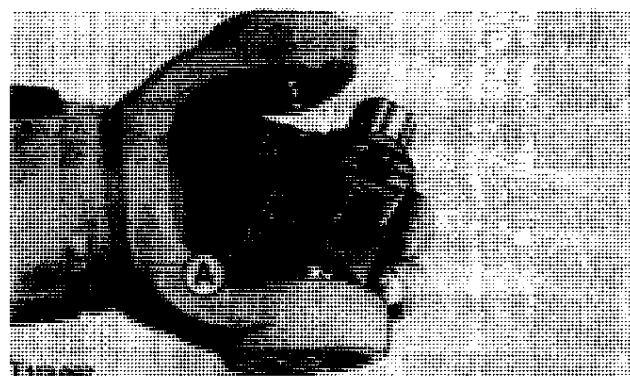


L113006-LA95050AE-281185

REMOVING UNIVERSAL JOINT

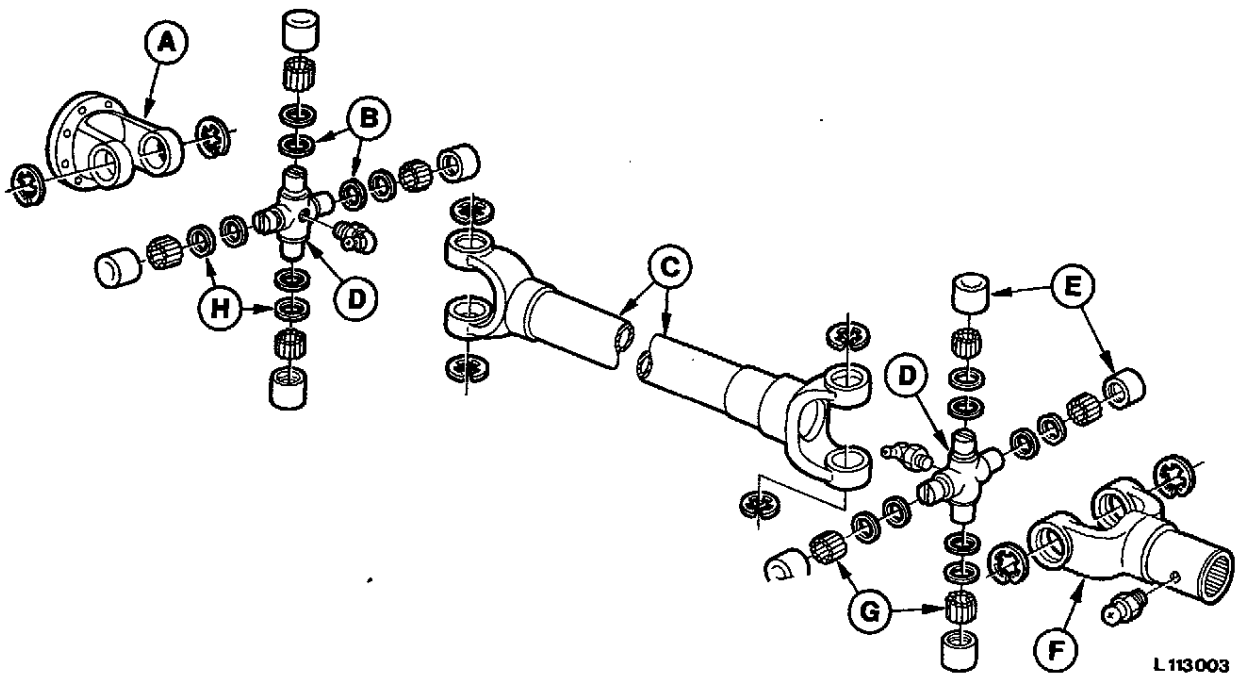
NOTE: When removing universal joint between shaft and fork, proceed exactly the same as when removing universal joint between shaft and connecting flange.

A-Grease fitting



L113007-LA95050AE-281185

UNIVERSAL-JOINTED DRIVE SHAFT, EXPLODED VIEW



L 113 003

A—Connecting flange
B—Cover rings (8 used)
C—Drive shaft

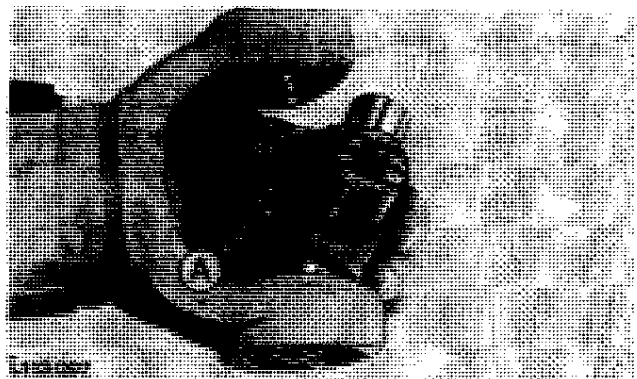
D—Universal joint (2 used)
E—Bearing cups (8 used)
F—Connecting fork

G—Needle bearings (20 used)
H—Seal rings (8 used)

L113003-LA95050AE-001185

INSTALLING UNIVERSAL JOINT

NOTE: Position universal joint so that grease fitting (A) points toward drive shaft.

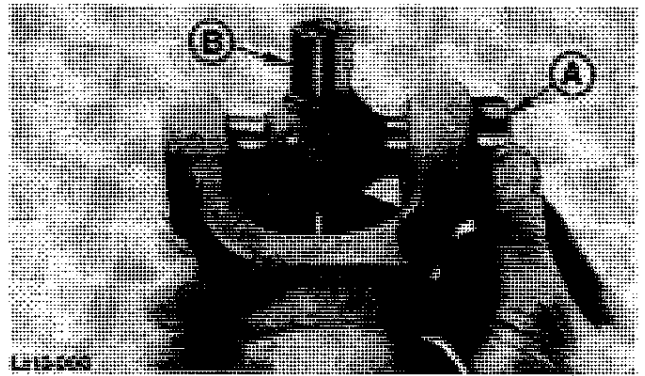


L113007-LA95050BE-281185

INSTALLING FIRST BEARING CUP IN U.J. DRIVE SHAFT

IMPORTANT: Before installing first bearing cup, make sure that correct number of needle bearings are installed (coated with grease).

Slide universal joint (B) to the right as far as possible in bore. This to ensure a guide and correct installation of first bearing cup (A) with needle bearings. Drive bearing cup with universal-joint far enough into shaft fork so that snap ring can be installed.

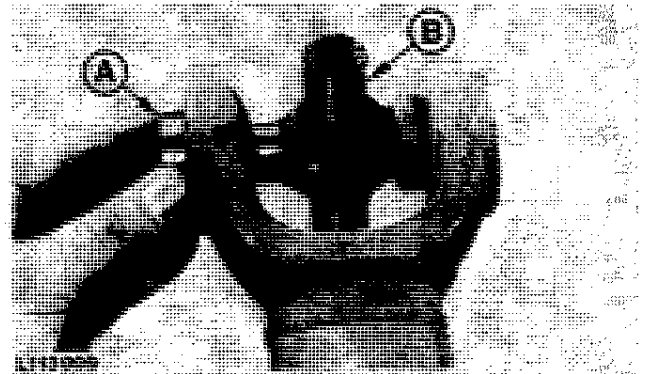


L113008-LA95050AE-281185

INSTALLING SECOND BEARING CUP IN U.J. DRIVE SHAFT

Install second bearing cup (A) in bore of drive shaft fork. Slide universal joint (B) to the left to act as a guide for the second bearing cup.

Drive in bearing cup and secure with snap ring.



L113009-LA95050AE-281185

INSTALLING BEARING CUPS IN CONNECTING FLANGE

NOTE: Install bearing cups in connecting flange and fork similarly as described above in universal-jointed drive shaft.

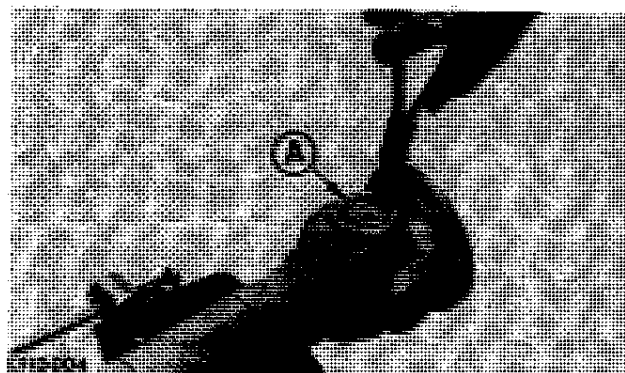


L113010-LA95050AE-281185

INSTALLING SNAP RINGS

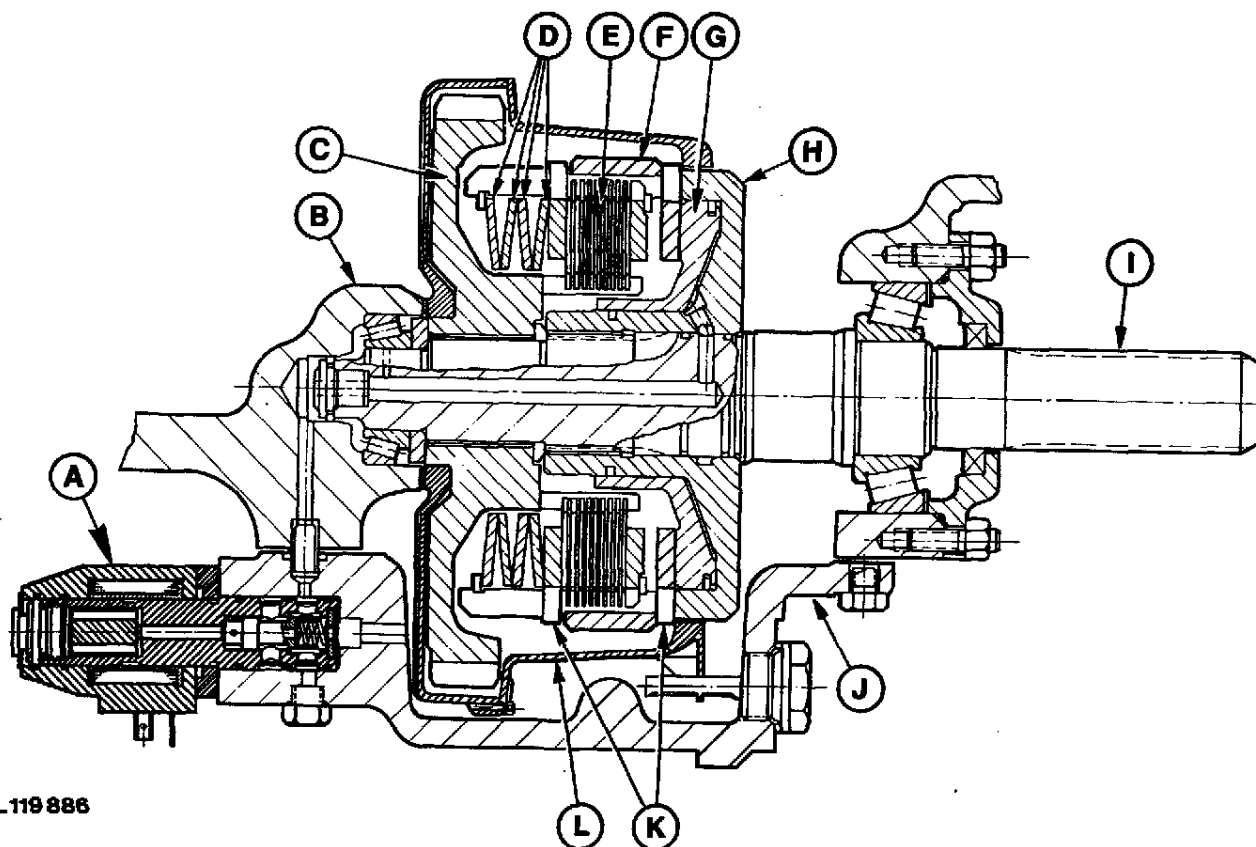
Install remaining snap rings (A).

IMPORTANT: Having completed assembly of drive shaft, thoroughly lubricate universal joints.



L113004-LA95050BE-281185

DISK CLUTCH, SECTIONAL VIEW



L119886

A-Solenoid switch
B-Clutch housing
C-Clutch hub with gear
D-Belleville springs

E-Disk pack
F-Spacer ring
G-Release piston
H-Clutch drum

I-Clutch shaft
J-Oil pan
K-Thrust rings
L-Cover

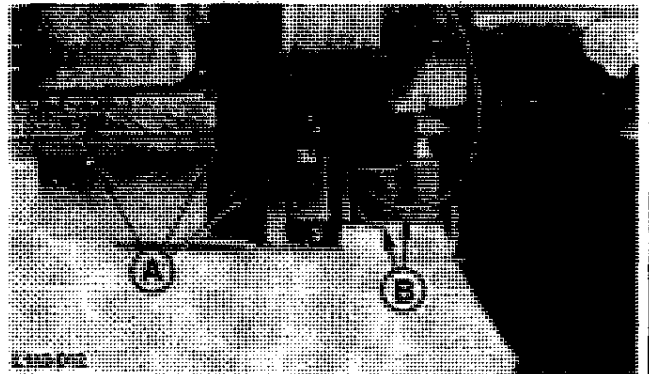
L119886-LB25060AE-010488

REMOVING OIL PAN

Drain transmission oil.

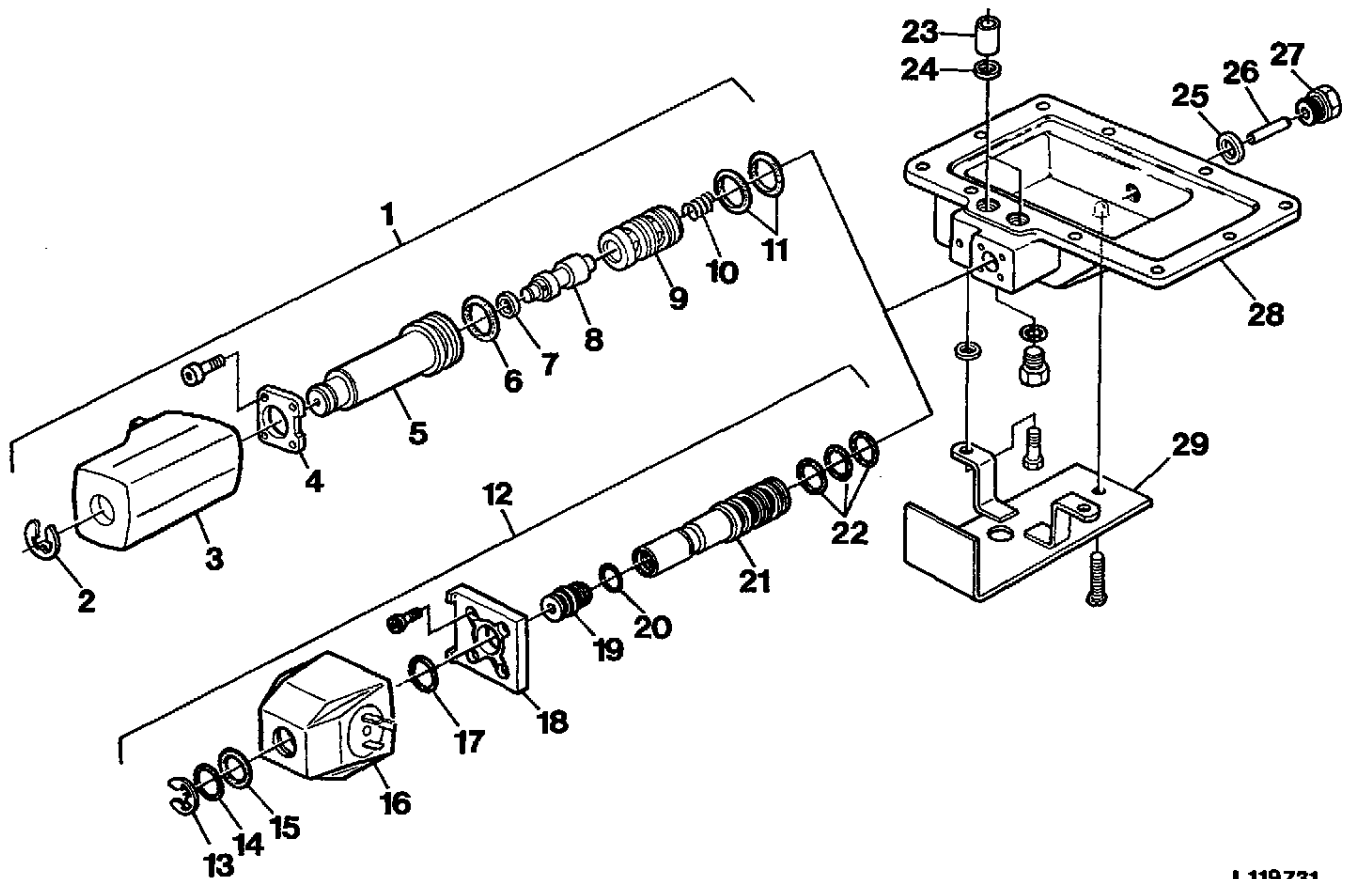
Pull off cable (B) at solenoid.

Remove attaching screws (A) and lift out oil pan.



L113012-LA95050AE-281185

SOLENOID SWITCH AND OIL PAN, EXPLODED VIEW



L 119731

1-Solenoid switch
assembly*
2-Snap ring
3-Solenoid switch coil
4-Retaining plate
5-Core sleeve
6-O-ring
7-Back-up washer

8-Spool
9-Spool sleeve
10-Spring
11-O-rings
12-Solenoid switch
assembly**

14-O-ring
15-O-ring
16-Solenoid switch coil
17-O-ring
18-Retaining plate
19-Plug
20-O-ring
21-Core sleeve assembly

22-O-rings
23-Tube
24-Seal ring (2 used)
25-Seal ring
26-Pin
27-Oil drain plug
28-Oil pan
29-Solenoid guard

* Up to Tractor Serial No. 607 857L

** From Tractor Serial No. 607 858L

L119731-LB25060AE-010488

REMOVING PLASTIC BUSHING AND BACK-UP RING

Using slide hammer D-01210AA (A), pull plastic bushing (B) and back-up ring (C) from clutch shaft.



L113014-LA95050AE-281185

REMOVING BEARING QUILL



L113015-LA95050AE-281185

PULLING OUT CLUTCH SHAFT

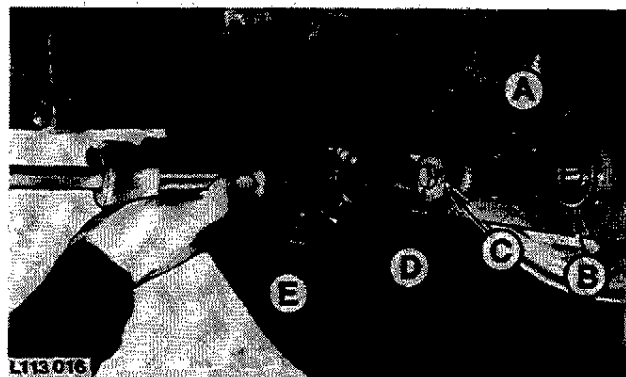
Using an M10 cap screw (D), a washer (C) and slide hammer D-01210AA (E), loosen clutch shaft (A) with taper roller bearing (B) out of clutch housing.



CAUTION: Do not remove completely at this stage, otherwise clutch disk assembly will drop down.

A-Clutch shaft
B-Taper roller bearing
C-Washer

D-Cap screw (M10)
E-Slide hammer D-01210AA



L113016-LA95050AE-281185

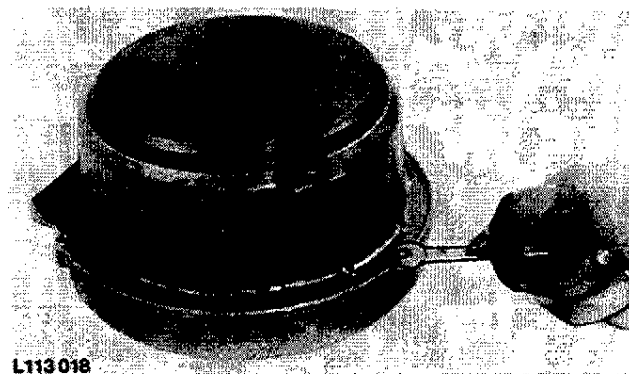
REMOVING DISK CLUTCH

NOTE: When removing clutch shaft (A), the spacer between rear taper roller bearing cone and disk clutch can drop out. When lifting out the disk clutch make sure that rear taper roller bearing cone does not tilt and jam against disk clutch housing.



L113017-LA95050AE-281185

REMOVING DISK CLUTCH HOUSING



L113018-LA95050AE-281185

LIFTING CLUTCH DRUM OUT OF CLUTCH HUB

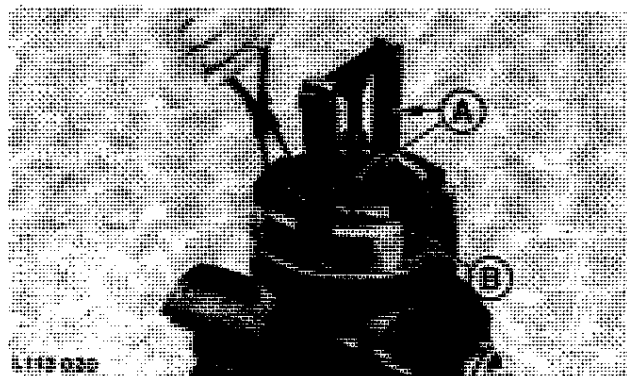
Remove friction washer out of clutch hub.



L113019-LA95050AE-281185

REMOVING UPPER SNAP RING

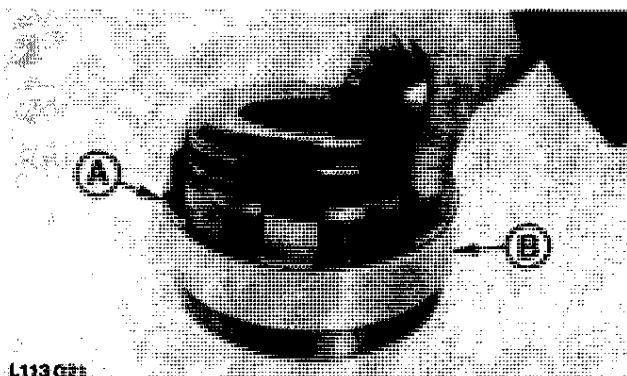
Using special tool KML10005 (A), compress Belleville spring pack (B).



L113020-LA95050AE-281185

REMOVING BELLEVILLE SPRINGS

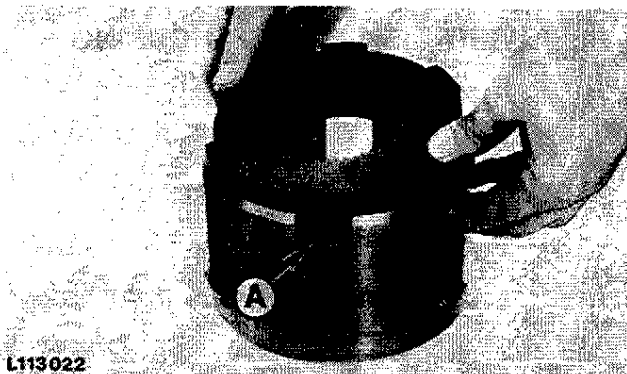
Remove upper pressure ring (A) and spacer ring (B).



L113021-LA95050AE-281185

REMOVING CLUTCH DISK PACK

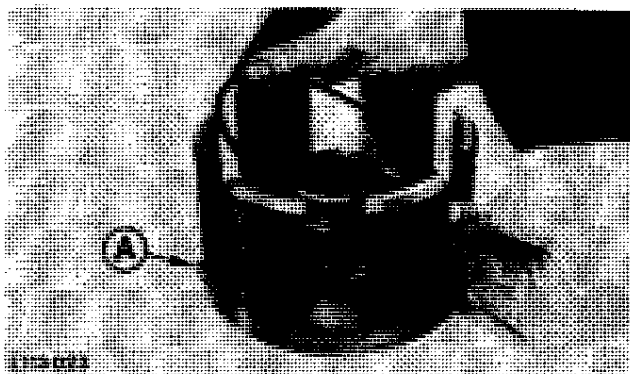
Remove chamfered pressure ring (A).



L113022-LA95050AE-281185

REMOVING LOWER SNAP RING

Remove lower pressure ring (A).

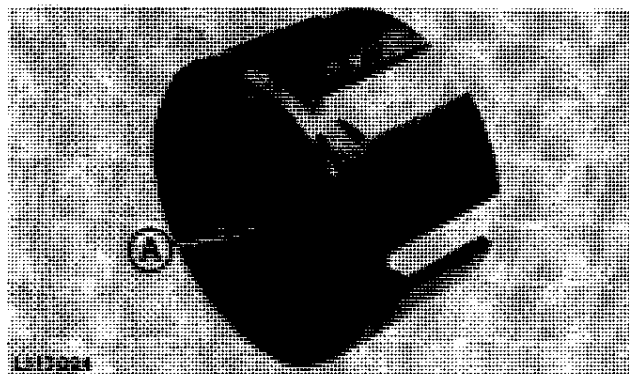


L113023-LA95050AE-281185

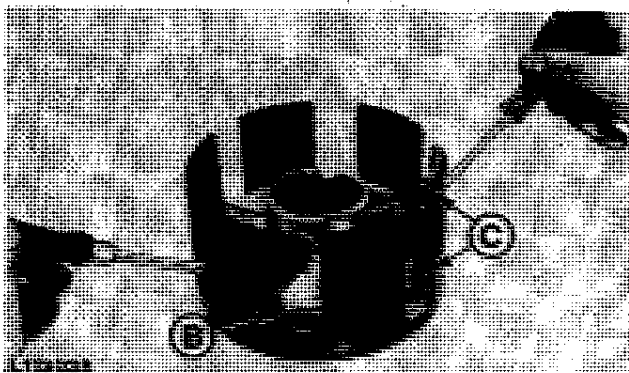
Front Wheel Drive U.J. Drive Shaft and Disk Clutch

REMOVING RELEASE PISTON

Force piston from base of clutch drum by means of compressed air through bore (A).

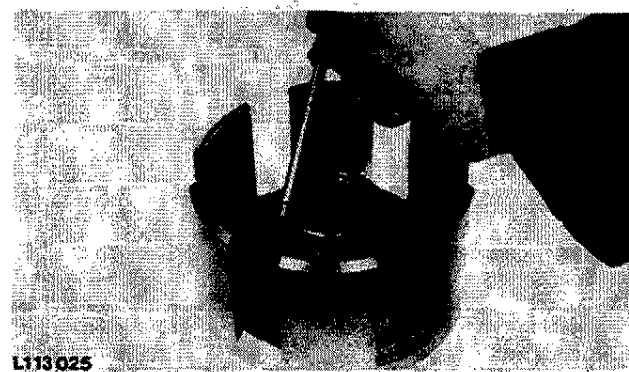


NOTE: Lever piston upwards as shown, thereby guiding piston ring (B) carefully past both grooves (C) of clutch drum.



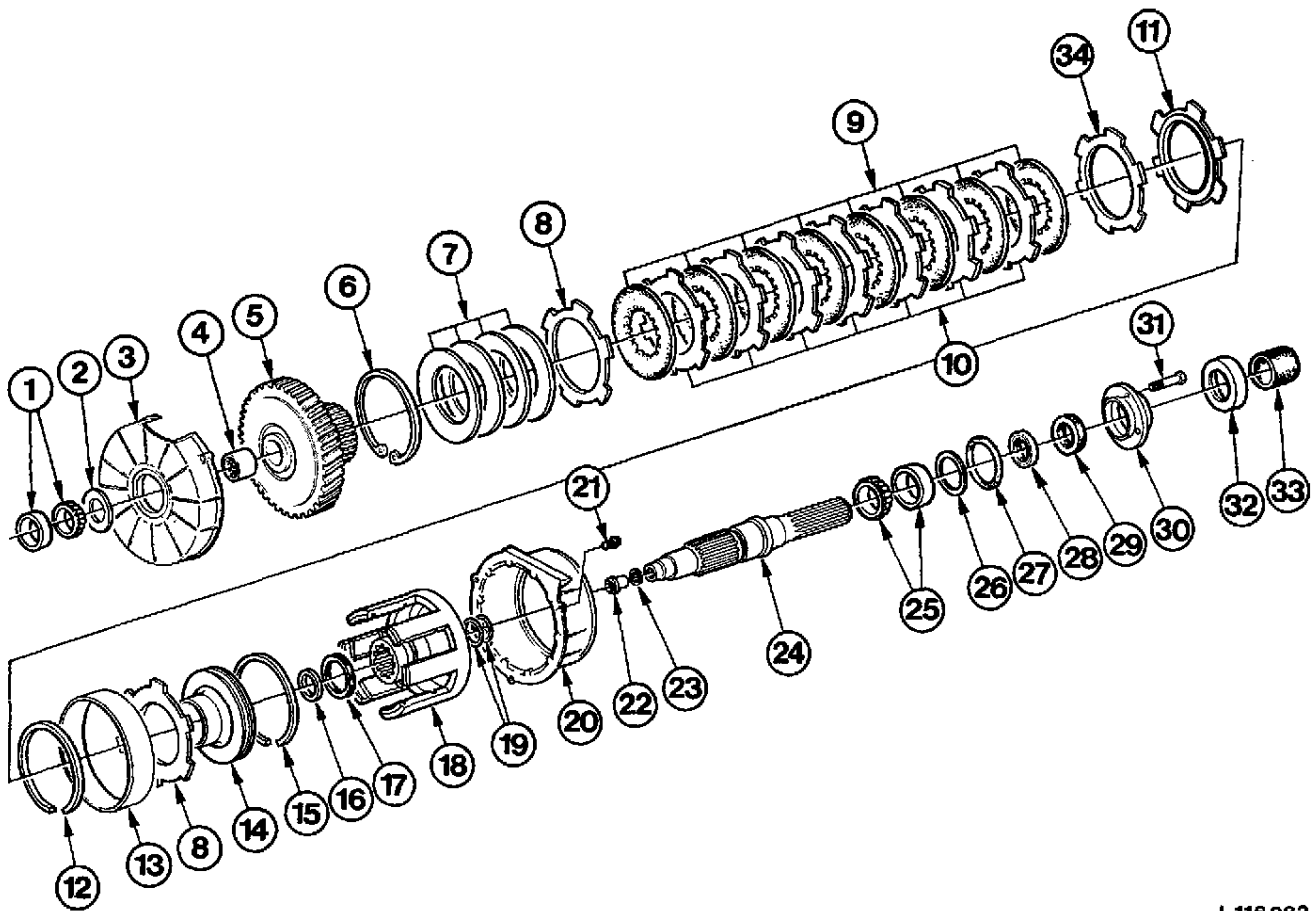
L113024, L113038-LA95050AE-281185

REMOVING SEAL RING



L113025-LA95050AE-281185

DISK CLUTCH ASSEMBLY, EXPLODED VIEW



L 116 082

- 1-Taper roller bearing
- 2-Spacer ring
- 3-Cover
- 4-Bushing
- 5-Clutch hub with gear
- 6-Snap ring
- 7-Belleville springs (4 used)
- 8-Pressure ring
- 9-Internal splined disks (8* or 9** or 10*** used)
- 10-External splined disks (7* or 8** or 9*** used)
- 11-Pressure ring

- 12-Snap ring
- 13-Spacer ring
- 14-Release piston
- 15-Piston ring
- 16-Friction washer
- 17-Seal ring
- 18-Clutch drum
- 19-O-rings
- 20-Cover
- 21-Cap screw (3 used)
- 22-Sleeve

- 23-Seal ring
- 24-Clutch shaft
- 25-Taper roller bearing
- 26-Shim (use as required)
- 27-O-ring
- 28-Oil seal
- 29-Seal ring
- 30-Bearing quill
- 31-Cap screw (3 used)
- 32-Back-up ring
- 33-Plastic bushing
- 34-External splined disk*

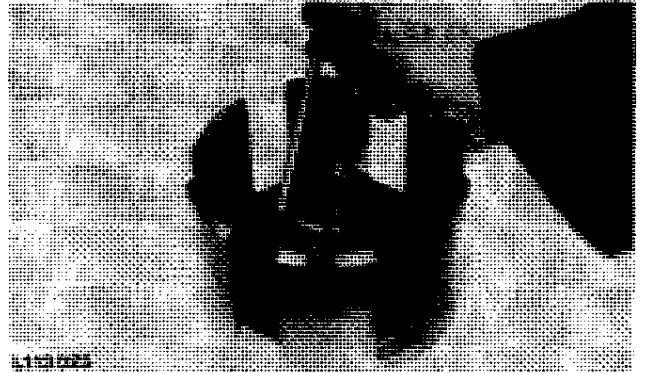
* On 2250, 2450, 2650 and 2650N tractors up to Tractor Serial No. 654 695L

** On 2250, 2450, 2650 and 2650N tractors from Tractor Serial No. 654 696L and on 2850 tractors up to Serial No. 654 695L

*** On 2850 tractors from Serial No. 654 696L

L116082-LB35075AE-010888

INSTALLING SEAL RING



L113025-LA95050BE-281185

INSTALLING RELEASE PISTON

NOTE: Guide piston ring carefully past grooves of clutch drum.

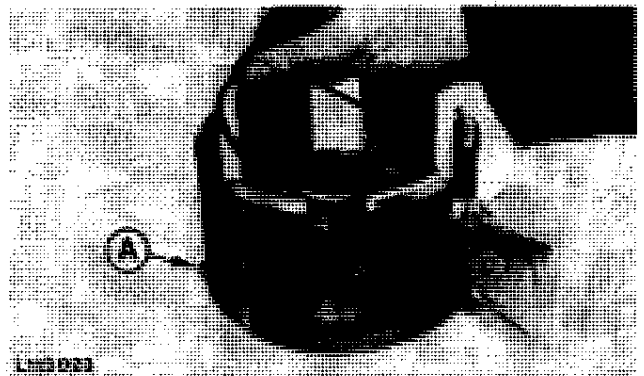


L113027-LA95050AE-281185

INSTALLING LOWER SNAP RING

Position lower pressure ring (A) and install snap ring.

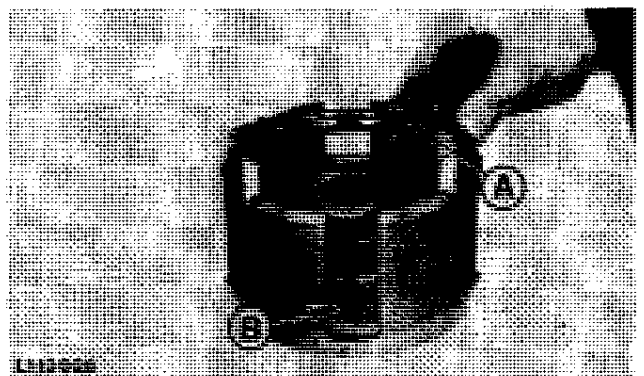
NOTE: The rounded edge of pressure ring must face upwards.



L113023-LB25060AE-010488

INSTALLING CHAMFERED PRESSURE RING

Install pressure ring with chamfered side (A) facing snap ring (B).

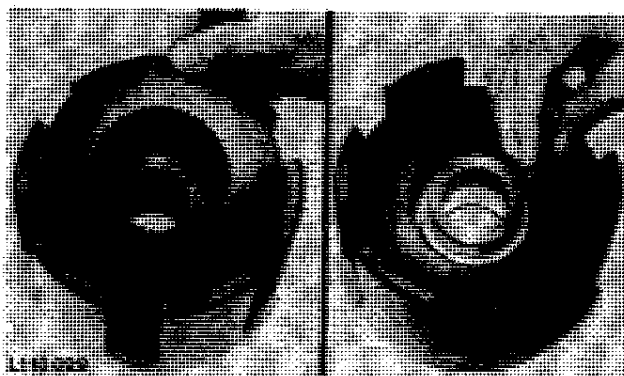


L113028-LA95050AE-281185

INSTALLING CLUTCH DISKS

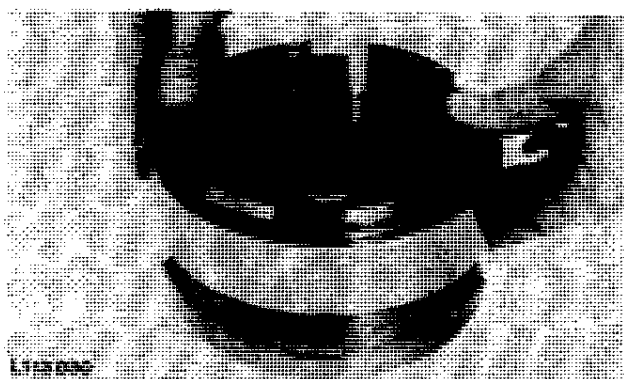
Install clutch disks alternately in drum, commencing with an internal splined disk.

NOTE: Align splines of internal splined disks.



L113029-LB25060AE-010488

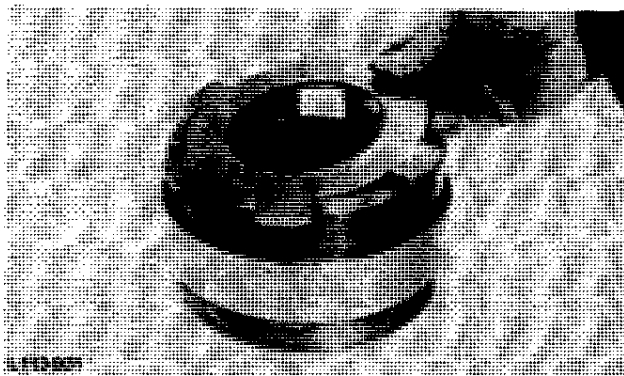
INSTALLING SPACER RING



L113030-LA95050AE-281185

INSTALLING UPPER PRESSURE RING

NOTE: The rounded edge of pressure ring must face downwards.



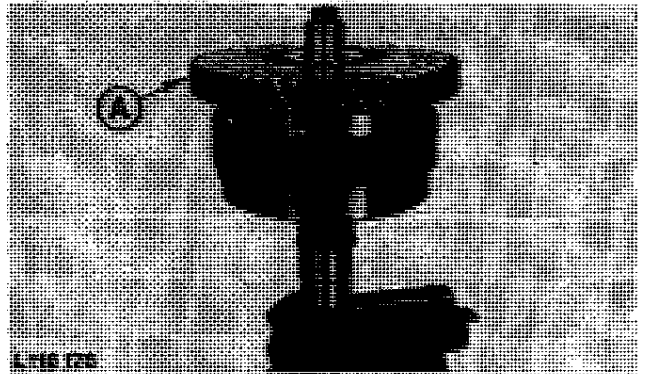
L113031-LB25060AE-010488

ALIGNING CLUTCH DISK PACK

Secure clutch shaft in a vice.
Using the clutch hub with gear (A), align internal splined disks. Thereby making sure that the clutch hub bottoms on inner section of clutch drum before completing alignment.

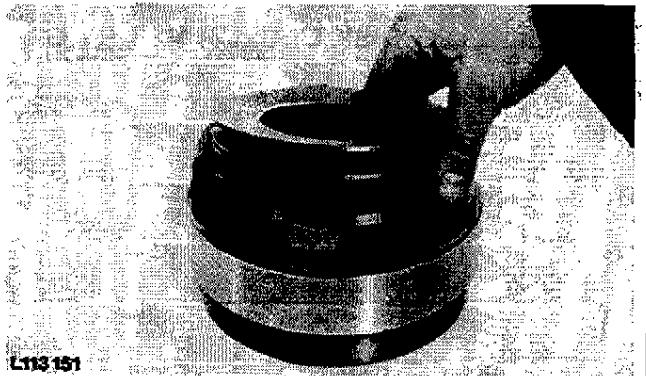
Carefully pull clutch hub with gear from disk pack.

IMPORTANT: Make sure that position of clutch disks is not changed. When necessary, repeat alignment procedure of clutch disk pack.



L116178-LB35075AE-010287

POSITIONING BELLEVILLE SPRINGS

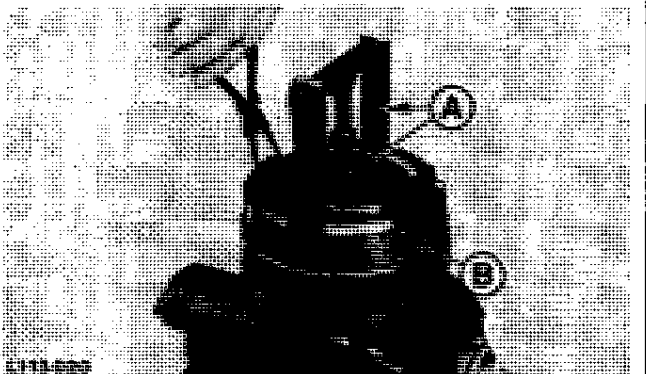


L113151-LA95050AE-281185

INSTALLING UPPER SNAP RING

Using special tool KML10005 (A), press Belleville springs (B) together.

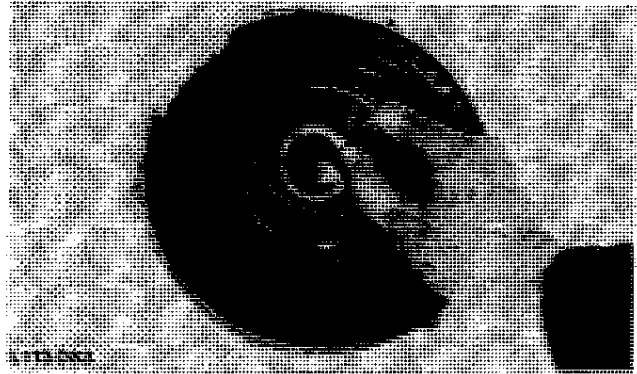
NOTE: Make sure that Belleville springs are not restricted by snap ring groove.



L113020-LB35075AE-010287

INSTALLING FRICTION WASHER

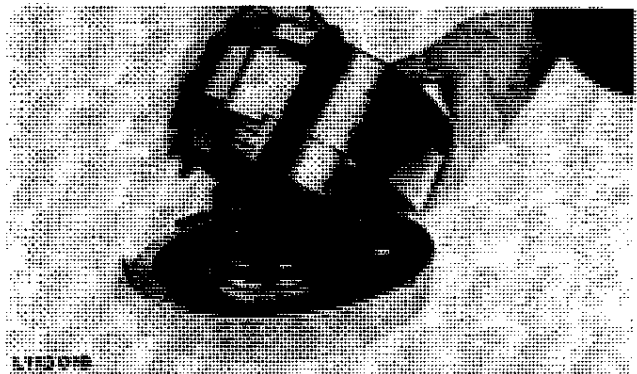
Install friction washer with chamfered side facing upwards.



L113033-LA95050AE-281185

INSTALLING CLUTCH DRUM IN CLUTCH HUB

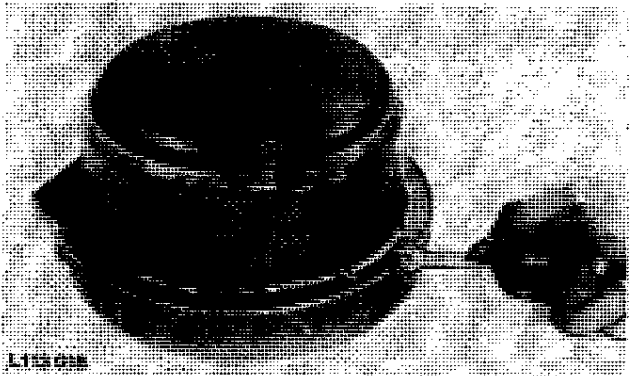
NOTE: Internal splined disks should slide over splines of clutch hub without too great resistance. When necessary, realign disk pack.



L113019-LA95050BE-281185

ASSEMBLING DISK CLUTCH HOUSING

NOTE: Check as to whether clutch shaft can be installed without any undue resistance.



L113018-LB35075AE-010287

ADJUSTING TAPER ROLLER BEARINGS

Install clutch shaft with front and rear taper roller bearings and spacer ring in the clutch housing.

NOTE: Install disk clutch after having adjusted taper roller bearings.

Install and secure bearing quill or, on tractors with hydrostatic creeper transmission, spacer housing without shims.

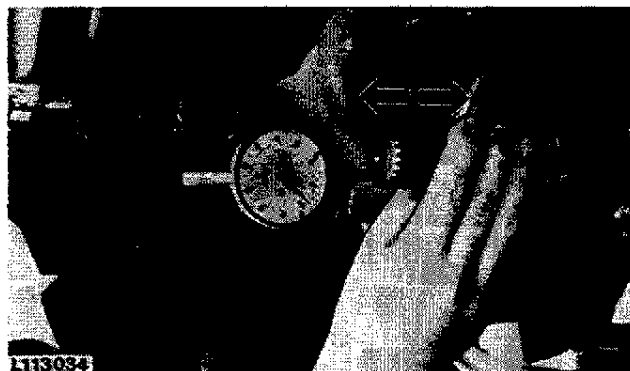
On tractors with hydrostatic creeper transmission, install cap screw M10 with hex. nut in clutch shaft and lock in position.

Move clutch shaft axially and at the same time turn shaft to center front and rear taper roller bearings before measuring axial play.

NOTE: Make sure that feeler of indicator shaft is on same spot of shaft face or head of cap screw when measuring axial play. Mark this spot before measuring.

Add shim pack to give a preload of 0.02 mm (0.0008 in.) up to an axial free play of 0.03 mm (0.0012 in.).

Remove bearing quill or spacer housing and clutch shaft.



L113034, L120544-LB35075AE-010888

INSTALLING TAPER ROLLER BEARING CONE IN CLUTCH HOUSING

NOTE: Insert taper roller bearing cone coated with grease in bearing cup.

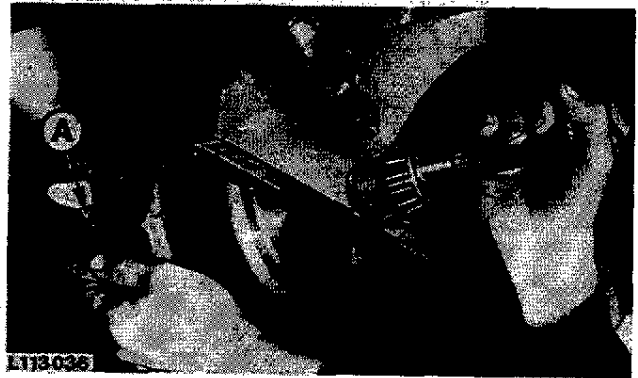


L113035-LA95050AE-281185

INSTALLING DISK CLUTCH

Install spacer washer (A) between rear taper roller bearing cone and disk clutch.

Slide clutch shaft with front taper roller bearing into the clutch housing.

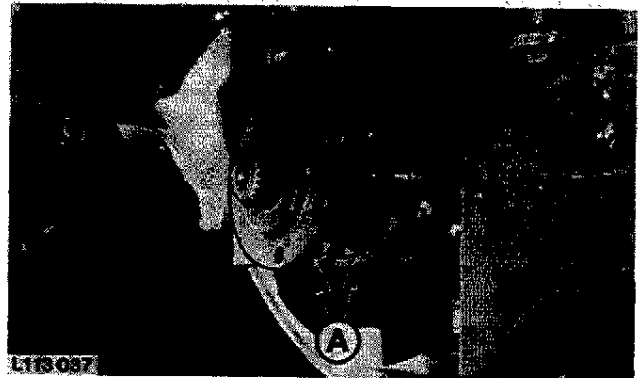


L113036-LA95050AE-281185

INSTALLING BEARING QUILL

Install shim pack (A) in the thickness determined previously.

Install oil pan and connect cables to solenoid.



L113037-LA95050AE-281185

SLIDING BACK-UP RING AND PLASTIC BUSHING ON CLUTCH SHAFT



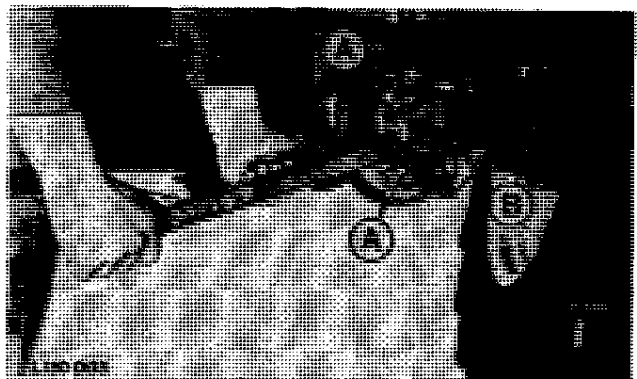
L113039-LA95050AE-281185

INSTALLING U.J. DRIVE SHAFT

Tighten hex. nuts (A) of universal-jointed drive shaft (B) to 75 Nm (55 ft-lb).

When equipped, install front and rear anti-wrap guards.

Refill with transmission/hydraulic oil.



L110005-LA75050AE-281185

Section 60

STEERING SYSTEM AND BRAKES – REPAIR

NOTE: The steering cylinders on tractors equipped with front wheel drive are dealt with in Technical Manual – Front Wheel Drive Axles APL-300 and APL-700 Series.

05 – HYDROSTATIC STEERING

		2250	2450	2650	2650 N	2850
Special tools	05-1	x	x	x	x	x
Specifications	05-1	x	x	x	x	x
Torques for hardware	05-1	x	x	x	x	x
Steering valve, sectional view	05-2	x	x	x	x	x
Removing steering wheel	05-2	x	x	x	x	x
Removing steering valve	05-3	x	x	x	x	x
Removing metering unit	05-4	x	x	x	x	x
Removing check valve and suction valves	05-4	x	x	x	x	x
Removing double-acting shock valves	05-4	x	x	x	x	x
Removing valve spool and sleeve	05-4	x	x	x	x	x
Marking valve spool and sleeve	05-5	x	x	x	x	x
Disassembling valve spool and sleeve	05-5	x	x	x	x	x
Removing seal rings	05-5	x	x	x	x	x
Steering valve, exploded view	05-6	x	x	x	x	x
Installing double-acting shock valves	05-7	x	x	x	x	x
Assembling valve spool and sleeve	05-7	x	x	x	x	x
Arranging leaf springs	05-7	x	x	x	x	x
Installing leaf springs	05-8	x	x	x	x	x
Installing cross pin and thrust bearing	05-8	x	x	x	x	x
Installing seal ring	05-8	x	x	x	x	x
Positioning O-ring and back-up ring on special tool	05-8	x	x	x	x	x
Installing O-ring and back-up ring	05-9	x	x	x	x	x
Installing valve spool and sleeve	05-9	x	x	x	x	x
Installing check valve	05-9	x	x	x	x	x
Installing suction valves	05-10	x	x	x	x	x

LENKBREM-LB36001AE-010490

05 – HYDROSTATIC STEERING (CONTD.)

		2250	2450	2650	2650 N	2850
Installing distributor plate and drive shaft	05-10	x	x	x	x	x
Assembling metering unit	05-10	x	x	x	x	x
Installing metering unit cover	05-10	x	x	x	x	x
Adjusting double-acting shock valves	05-11	x	x	x	x	x
Steering column (without cab or with MC1 cab), exploded view	05-12	x	x	x	x	x
Steering column (with SG2 cab), exploded view	05-12	x	x	x		x
Steering column (with SG2 cab), sectional view	05-13	x	x	x		x
Installing bushing and seal ring (with SG2 cab)	05-13	x	x	x		x
Pressing in hollow screw (with SG2 cab)	05-14	x	x	x		x
Adjusting thrust bearing (with SG2 cab)	05-14	x	x	x		x
Installing steering valve	05-15	x	x	x	x	x
Securing steering wheel	05-15	x	x	x	x	x

**10 – STEERING CYLINDER
(Without Front Wheel Drive)**

Special tools	10-1	x	x	x		x
Torques for hardware	10-1	x	x	x		x
Supporting tractor safely	10-2	x	x	x		x
Disconnecting hydraulic lines	10-2	x	x	x		x
Disconnecting tie rod	10-2	x	x	x		x
Removing axle knee	10-2	x	x	x		x
Removing steering cylinder	10-3	x	x	x		x
Double-acting steering cylinder (AR102516), sectional view	10-3	x	x	x		x
Removing ring nut	10-4	x	x	x		x
Removing snap ring	10-4	x	x	x		x
Replacing seal rings	10-4	x	x	x		x
Assembling steering cylinder	10-4	x	x	x		x
Double-acting steering cylinder (AR102516), exploded view	10-5	x	x	x		x
Double-acting steering cylinder (AL36563), sectional view	10-6	x	x	x		x
Removing locking wire	10-6	x	x	x		x
Removing piston seal rings	10-6	x	x	x		x
Replacing seal rings	10-7	x	x	x		x
Securing piston	10-7	x	x	x		x
Assembling steering cylinder	10-7	x	x	x		x
Double-acting steering cylinder (AL36563), exploded view	10-8	x	x	x		x

LENKBREM-LB36002AE-010490

10 – STEERING CYLINDER
(Without Front Wheel Drive) (Contd.)

		2250	2450	2650	2650 N	2850
Double-acting steering cylinder (AL60895), sectional view	10-9	x	x	x		x
Removing outer snap ring	10-9	x	x	x		x
Removing inner snap ring	10-9	x	x	x		x
Replacing seal rings	10-10	x	x	x		x
Assembling steering cylinder	10-10	x	x	x		x
Installing snap rings	10-10	x	x	x		x
Double-acting steering cylinder (AL60895), exploded view	10-11	x	x	x		x
Installing steering cylinder	10-12	x	x	x		x
Installing axle knee	10-12	x	x	x		x
Installing front wheel	10-12	x	x	x		x

15 – POWER STEERING

Special tools	15-1	x	x	x		x
Specifications	15-1	x	x	x		x
Torques for hardware	15-2	x	x	x		x
Preliminary work	15-2	x	x	x		x
Removing steering shaft cover	15-3	x	x	x		x
Separating connecting rod and steering shaft ...	15-3	x	x	x		x
Removing steering housing	15-3	x	x	x		x
Power steering, sectional view	15-4	x	x	x		x
Removing steering column extension	15-5	x	x	x		x
Removing steering piston with steering piston rod	15-5	x	x	x		x
Removing steering column shaft	15-6	x	x	x		x
Removing upper snap ring	15-6	x	x	x		x
Removing valve housing assemblies	15-6	x	x	x		x
Removing steering piston	15-6	x	x	x		x
Power steering, exploded view	15-7	x	x	x		x
Adjusting valve housing assemblies	15-8	x	x	x		x
Installing valve housing assemblies	15-9	x	x	x		x
Measuring clearance between snap ring and thrust washer	15-10	x	x	x		x
Replacing seal rings of threaded bushings or steering column extension	15-10	x	x	x		x
Installing steering column shaft and steering piston rod	15-10	x	x	x		x
Installing steering column extension	15-11	x	x	x		x

15 – POWER STEERING (Contd.)

2250
2450
2650
2650 N
2850

Driving bushing into steering shaft cover	15-11	x	x	x	x
Driving bushing and oil seal into clutch housing	15-11	x	x	x	x
Installing steering housing	15-12	x	x	x	x
Assembling connecting rod and steering shaft	15-12	x	x	x	x
Tightening steering arm	15-12	x	x	x	x
Final assembly	15-13	x	x	x	x
Checking steering wheel travel	15-13	x	x	x	x

20 – MANUAL STEERING

Special tools	20-1	x	x	x
Specifications	20-1	x	x	x
Torques for hardware	20-2	x	x	x
Preliminary work	20-3	x	x	x
Removing steering shaft cover	20-3	x	x	x
Separating yoke and steering shaft	20-3	x	x	x
Removing steering housing	20-4	x	x	x
Manual steering, sectional view	20-4	x	x	x
Removing bearing adjuster (up to Tractor Serial No. 646 890L)	20-5	x	x	x
Removing steering column extension and bearing adjuster (from Tractor Serial No. 646 891L)	20-5	x	x	x
Removing steering wheel shaft	20-5	x	x	x
Manual steering, exploded view	20-6	x	x	x
Installing oil seals	20-7	x	x	x
Attaching yoke	20-7	x	x	x
Installing steering column extension	20-7	x	x	x
Adjusting barrel bearings	20-8	x	x	x
Driving bushing into steering shaft cover	20-8	x	x	x
Driving bushing and oil seal in clutch housing	20-8	x	x	x
Installing steering housing	20-9	x	x	x
Connecting yoke and steering shaft	20-9	x	x	x
Tightening steering arm	20-9	x	x	x
Final assembly	20-10	x	x	x
Checking steering wheel travel	20-10	x	x	x

		2250	2450	2650	2650 N	2850
25 – HYDRAULIC BRAKES						
Special tools	25-1	x	x	x	x	x
Specifications	25-1	x	x	x	x	x
Torques for hardware	25-3	x	x	x	x	x
Brake valve assembly, exploded view (without cab or with MC1 cab)	25-4	x	x	x	x	x
Brake valve assembly, exploded view (with SG2 cab)	25-5	x	x	x		x
Four-wheel brake (universal-jointed drive shaft brake), exploded view	25-6	x	x	x		x
Disassembling brake valve assembly	25-7	x	x	x	x	x
Checking brake piston and inlet check valves	25-7	x	x	x	x	x
Installing seal rings and pressure equalizing valves	25-7	x	x	x	x	x
Installing brake piston	25-8	x	x	x	x	x
Installing brake pedal	25-8	x	x	x	x	x
Installing inlet check valves	25-8	x	x	x	x	x
Adjusting brake pedal	25-9	x	x	x	x	x
Checking brake valve assembly	25-9	x	x	x	x	x
Installing brake valve assembly	25-10	x	x	x	x	x
Removing brake rings and brake disks	25-10	x	x	x	x	x
Removing pressure ring	25-11	x	x	x	x	x
Brake disk assembly, exploded view	25-11	x	x	x	x	x
Installing brake retraction pin assemblies	25-12	x	x	x	x	x
Installing seal rings	25-12	x	x	x	x	x
Installing pressure ring	25-12	x	x	x	x	x
Checking pressure ring for leakage and return travel	25-13	x	x	x	x	x
Installing brake disk	25-13	x	x	x	x	x
Checking u.j. drive shaft brake linings	25-14	x	x	x		x
Checking u.j. drive shaft brake disk	25-14	x	x	x		x
Installing u.j. drive shaft brake	15-14	x	x	x		x
Bleeding rear wheel brakes	25-15	x	x	x	x	x
Bleeding sequence valve	25-15	x	x	x		x
Bleeding u.j. drive shaft brake	25-16	x	x	x		x
Checking brake system for leakage	25-16	x	x	x	x	x

30 – HANDBRAKE

		2250	2450	2650	2650 N	2850
Specifications	30-1	x	x	x	x	x
Preliminary work	30-1	x	x	x	x	x
Removing brake band support screw	30-1	x	x	x	x	x
Removing brake shaft and anchor	30-2	x	x	x	x	x
Removing brake band	30-2	x	x	x	x	x
Handbrake (without cab or with MC1 cab), exploded view	30-3	x	x	x	x	x
Handbrake (with SG2 cab), exploded view	30-4	x	x	x		x
Replacing brake band linings and repairing brake disk	30-5	x	x	x	x	x
Installing brake band	30-5	x	x	x	x	x
Final assembly	30-5	x	x	x	x	x
Adjusting handbrake	30-6	x	x	x	x	x
Adjusting handbrake indicator light sending unit	30-8	x	x	x	x	x

35 – HYDRAULIC TRAILER BRAKE

Specifications	35-1	x	x	x		x
Torques for hardware	35-2	x	x	x		x
Trailer brake, exploded view, up to tractor serial no. 632 321L						
– Without cab or with MC1 cab	35-3	x	x	x		x
– With SG2 cab	35-4	x	x	x		x
– With SG2 cab and increased lifting capacity	35-5			x		x
Trailer brake, exploded view, from tractor serial no. 632 322L to 692 738L						
– Without cab or with MC1 cab	35-6	x	x	x		x
– With SG2 cab, with and without increased lifting capacity	35-7	x	x	x		x
Trailer brake, exploded view, from tractor serial no. 692 739L						
– Without cab or with MC1 cab	35-8	x	x	x		x
– With SG2 cab, with and without increased lifting capacity	35-9	x	x	x		x

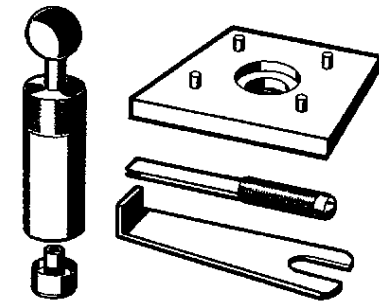
LENKBREM-LB36006AE-010490

35 – HYDRAULIC TRAILER BRAKE (Continued)

		2250	2450	2650	2650 N	2850
Trailer brake valve, exploded view						
– up to tractor serial no. 632 321L	35-10	x	x	x		x
– from tractor serial no. 632 322L to 692 738L	35-10	x	x	x		x
– from tractor serial no. 692 739L	35-11	x	x	x		x
Repairing brake valve	35-12	x	x	x		x
Bleeding brake valve (up to tractor serial no. 692 738L)	35-12	x	x	x		x
Adjusting brake valve (from tractor serial no. 632 322L)	35-13	x	x	x		x

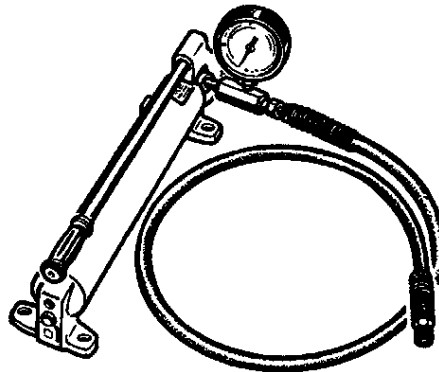
SPECIAL TOOLS

KML10018



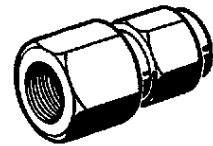
(A)

D-01019AA



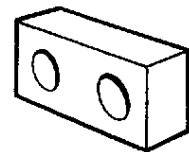
(B)

JTO3248



(C)

JDG-17



(D)

L119081

A—Installing steering valve

B,C—Adjusting double-acting shock valves

D—Removing steering wheel

L119081-LB36005AE-010888

SPECIFICATIONS

Adjustment pressure of double-acting shock valves	21000 kPa (210 bar; 3050 psi)
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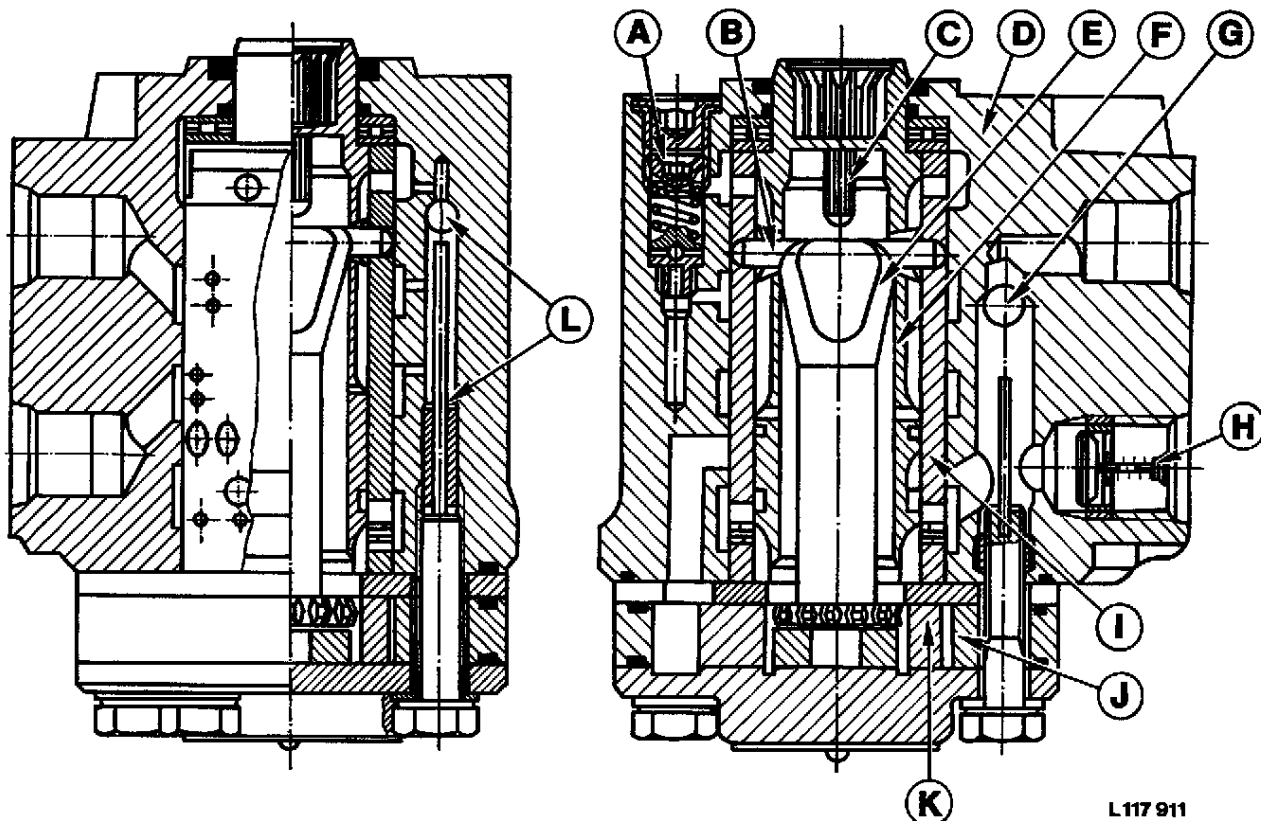
HYDST-LB526005AE-011087

TORQUES FOR HARDWARE

Cover to housing, cap screws	30 to 35 Nm (23 to 25 ft-lb)
Connectors in valve block	50 Nm (35 ft-lb)
Threaded plugs of double-acting shock valves	30 Nm (23 ft-lb)
Steering valve to steering column, cap screws	50 Nm (35 ft-lb)
Steering wheel to steering shaft, hex. nut	70 Nm (50 ft-lb)

LENK-LB26005AE-010488

STEERING VALVE, SECTIONAL VIEW



L117 911

A-Double-acting shock valve (2 used)

B-Cross pin

C-Leaf springs (6 used)

D-Valve housing

E-Drive shaft

F-Spool

G-Check valve

H-Check valve

I-Spool sleeve

J-Stator

K-Rotor

L-Suction valve (2 used)

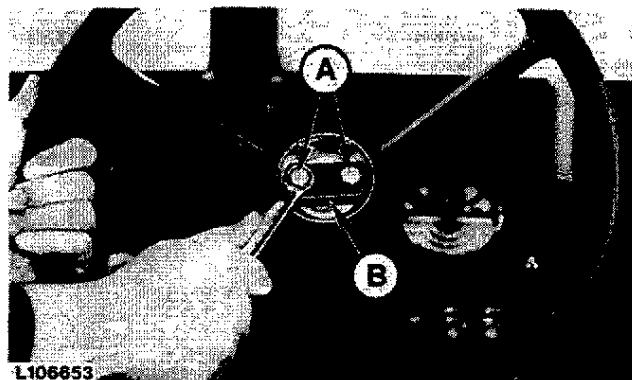
L117911-LB26005AE-000489

REMOVING STEERING WHEEL

Disconnect battery ground straps.

Pull off steering wheel, using special tool JDG-17 (B) and two cap screws 5/16 x 1-3/8 in. (A).

NOTE: On tractors without SG2 cab, position a spacer between special tool JDG-17 (B) and steering shaft.



L106853

L106853-LB26005AE-000886

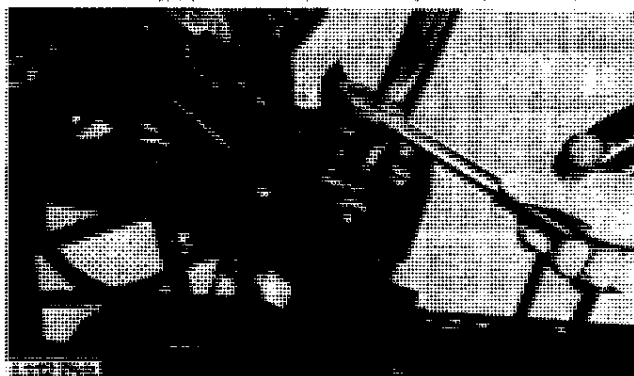
REMOVING STEERING VALVE

Tractors without Cab

Remove batteries.

Disconnect hydraulic lines at steering valve.

Remove cover and cap screws. Remove steering valve and steering column.



L112757-LB36005AE-010888

Tractors with SG2 Cab

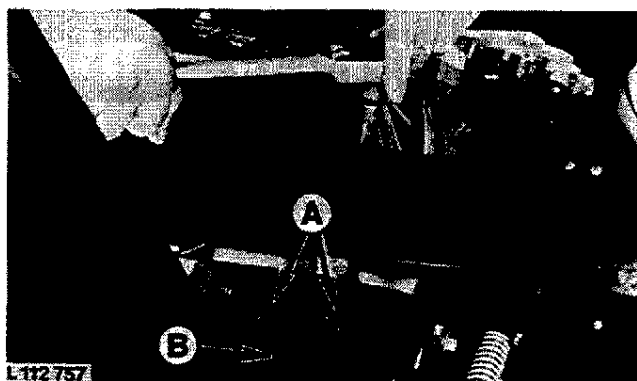
Disconnect battery ground straps.

Disconnect dash panel at support.

Disconnect hydraulic lines at steering valve.

Remove cap screws (A) and remove steering valve (B) with gasket downwards.

NOTE: Remove steering column tilt release lever before removing steering column tube.



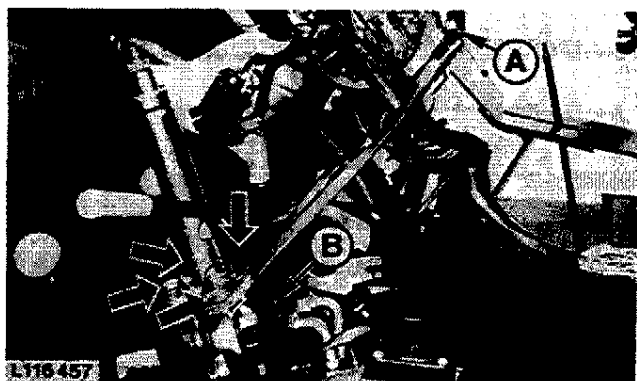
L114875,L112757-LB36005AE-010888

Tractors with MC1 Cab

Disconnect battery ground straps.

Remove dash panel (A).

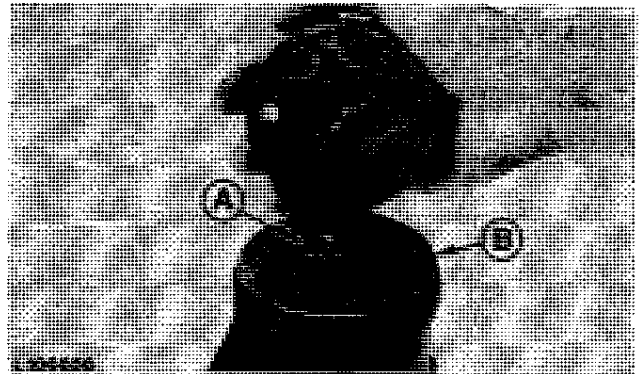
Disconnect hydraulic lines at steering valve (B).
Remove cap screws (see arrows) and remove steering valve.



L116457-LB36005AE-010888

REMOVING METERING UNIT

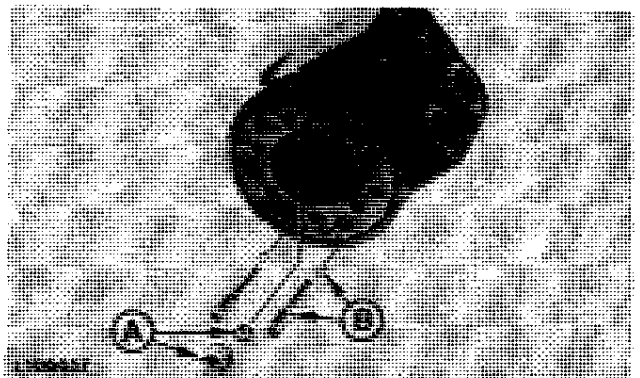
Remove drive shaft (A) and distributor plate (B).



L106656-LA76005AE-121184

REMOVING CHECK VALVE AND SUCTION VALVES

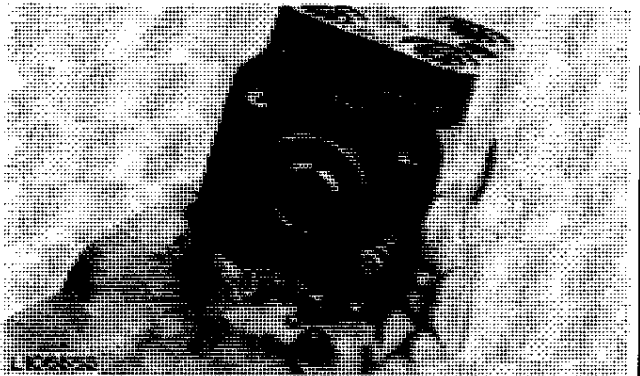
A-Check valve
B-Suction valves



L106657-LB26005AE-010886

REMOVING DOUBLE-ACTING SHOCK VALVES

NOTE: Double-acting shock valves are set to a specific pressure. Readjustment is necessary after removal.

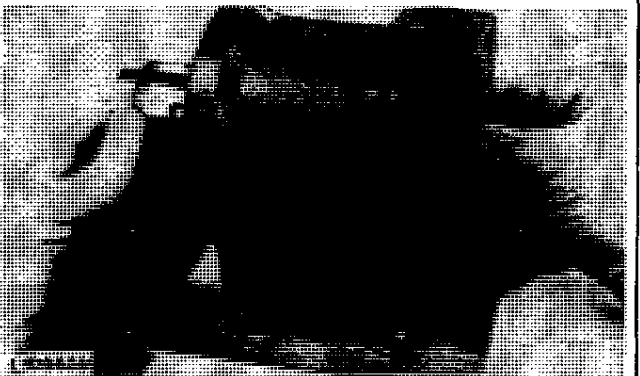


L106658-LA76005AE-121184

REMOVING VALVE SPOOL AND SLEEVE

NOTE: Place cross pin parallel to flattened face of steering valve by turning both spool and sleeve.

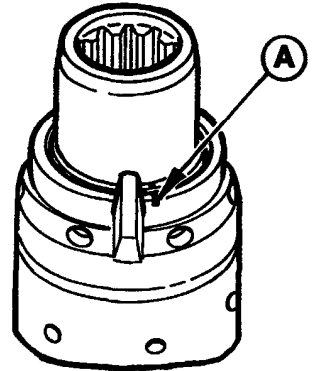
Remove spool and sleeve by applying slight pressure to valve spool and simultaneously turning valve sleeve.



L106659-LB26005AE-000488

MARKING VALVE SPOOL AND SLEEVE

Mark valve spool and sleeve as shown opposite when not already marked.



L 115 103

L115103-LB26005AE-010886

DISASSEMBLING VALVE SPOOL AND SLEEVE

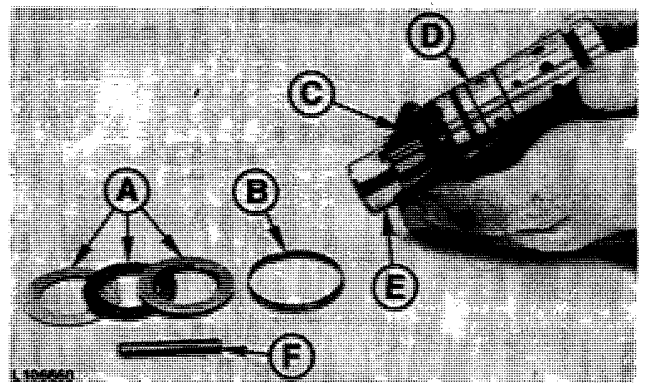
Remove thrust bearing (A) and retaining ring (B).

Remove cross pin (F). Push valve spool (E) out of valve sleeve (D) by overcoming tension of leaf springs (C).

Push leaf springs (C) out of valve spool (E).

A—Thrust bearing
B—Retaining ring
C—Leaf springs

D—Valve sleeve
E—Valve spool
F—Cross pin

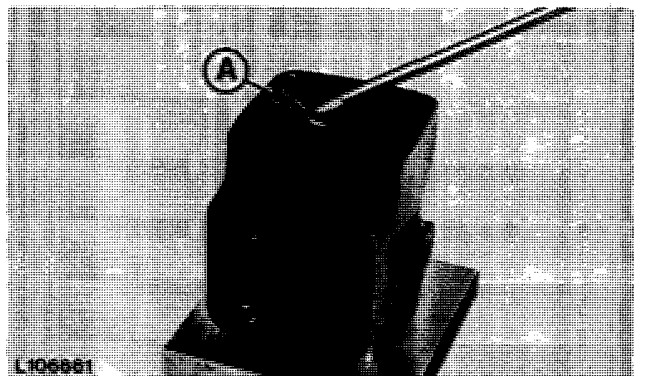


L106660-LA76005AE-121184

REMOVING SEAL RINGS

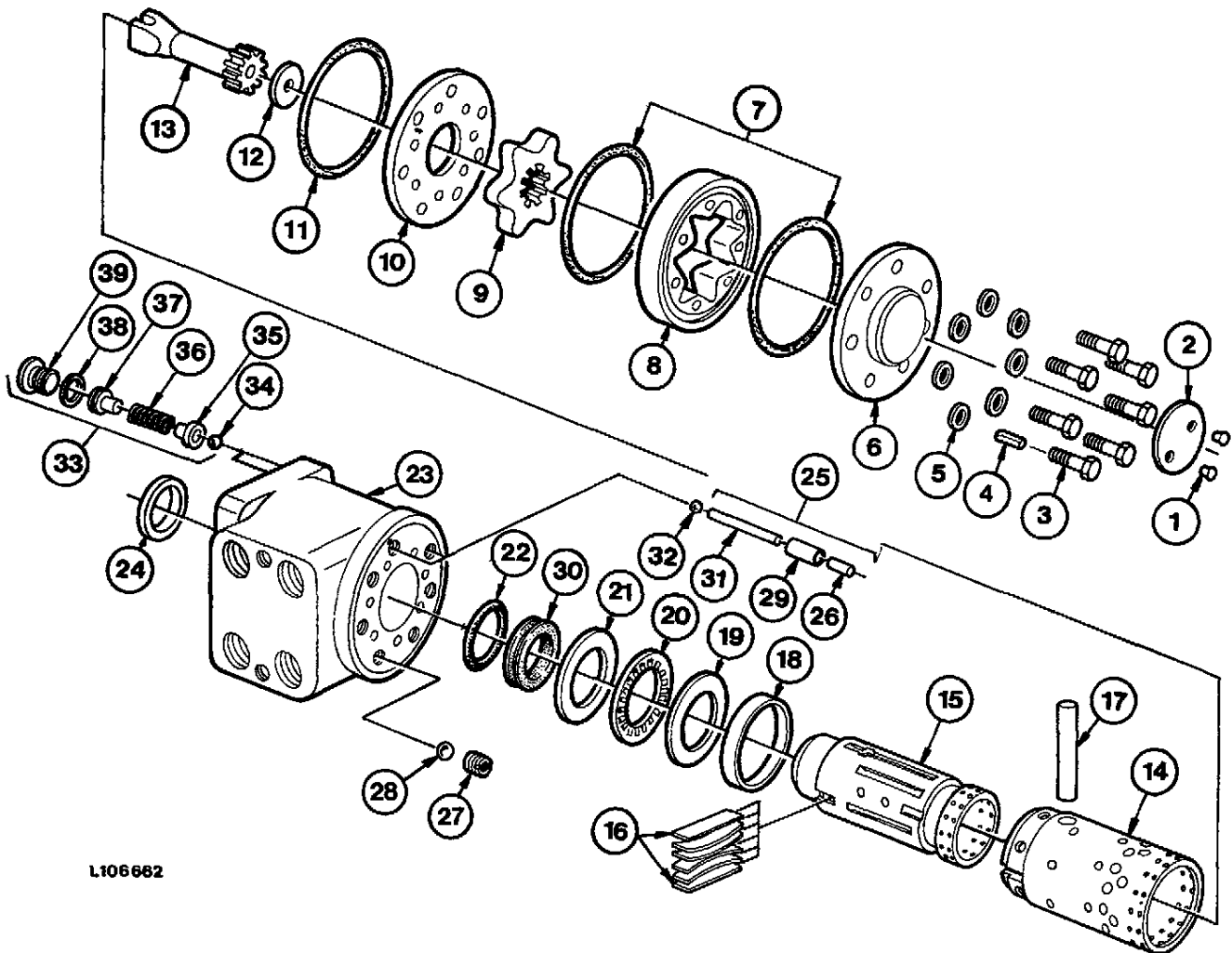
Remove seal ring (A) from housing using a suitable tool.

Remove back-up ring and O-ring.



L106681-LA76005AE-121184

STEERING VALVE, EXPLODED VIEW



L106662

- | | | | |
|-------------------------|--------------------------|---------------------------|---------------------------------------|
| 1-Impact screws | 11-O-ring | 21-Axial washer | 31-Spring pin (2 used) |
| 2-Serial number plate | 12-Spacer ring | 22-O-ring | 32-Ball (2 used) |
| 3-Cap screws (7 used) | 13-Drive shaft | 23-Housing | 33-Double-acting shock valve (2 used) |
| 4-Spring pin | 14-Valve sleeve | 24-Seal ring | 34-Ball (2 used) |
| 5-Seal washers (7 used) | 15-Valve spool | 25-Suction valve (2 used) | 35-Spring guide (2 used) |
| 6-Cover | 16-Leaf springs (6 used) | 26-Spring pin (2 used) | 36-Spring (2 used) |
| 7-O-rings | 17-Cross pin | 27-Threaded bushing | 37-Adjusting screw (2 used) |
| 8-Stator | 18-Retaining ring | 28-Ball | 38-Seal ring (2 used) |
| 9-Rotor | 19-Bearing race | 29-Sleeve (2 used) | 39-Threaded plug (2 used) |
| 10-Distributor plate | 20-Thrust bearing | 30-Back-up ring | |

L106662-LB26005AE-010488

INSTALLING DOUBLE-ACTING SHOCK VALVES

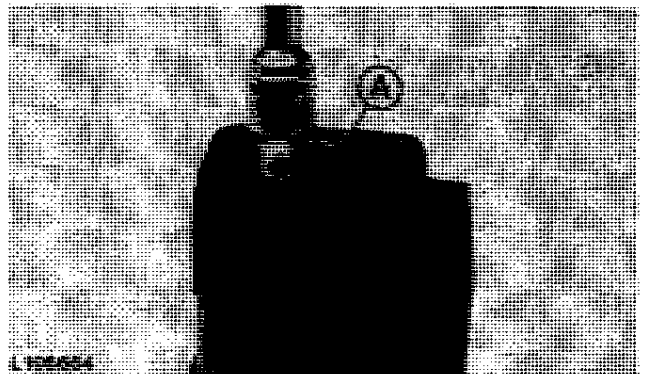
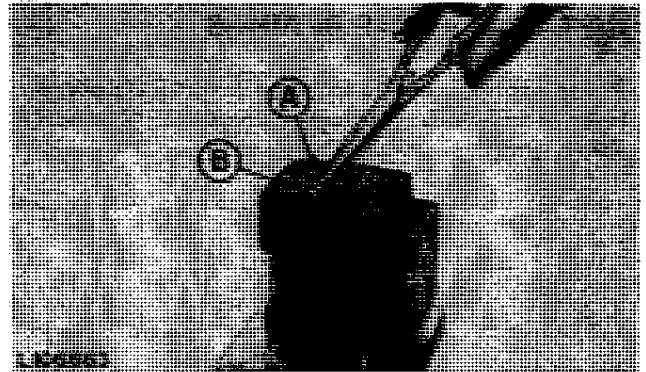
Place balls of double-acting shock valves into bore.

Coat spring guides (B) with vaseline and place on springs (A).

Insert springs (A) together with spring guides (B) in their relevant bores.

Screw in adjusting screws (A) until springs are under pressure.

NOTE: After assembling steering valve, readjust double-acting shock valves. Refer to "Adjusting Double-Acting Shock Valves".

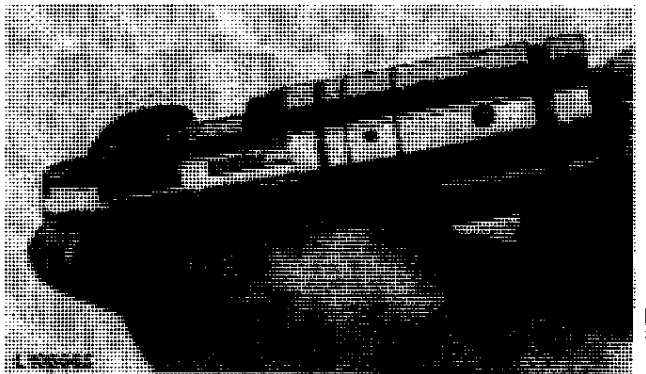


L106663, L106664-LB26005AE-010488

ASSEMBLING VALVE SPOOL AND SLEEVE

Assemble valve spool and sleeve. Assemble carefully and avoid jamming.

Turn sleeve until slots for leaf springs and markings are aligned.

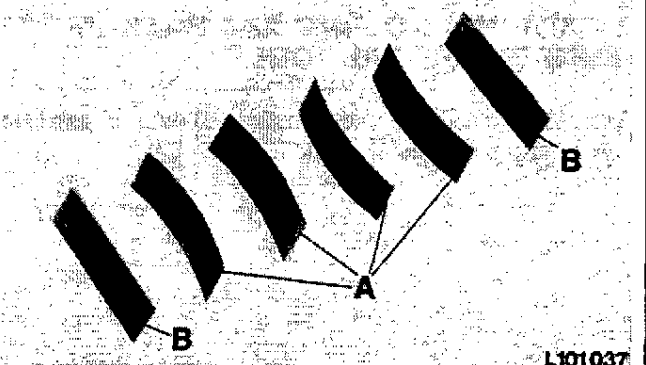


L106665-LB26005AE-010886

ARRANGING LEAF SPRINGS

Inner: Two pairs of curved springs (A) with convex side facing each other.

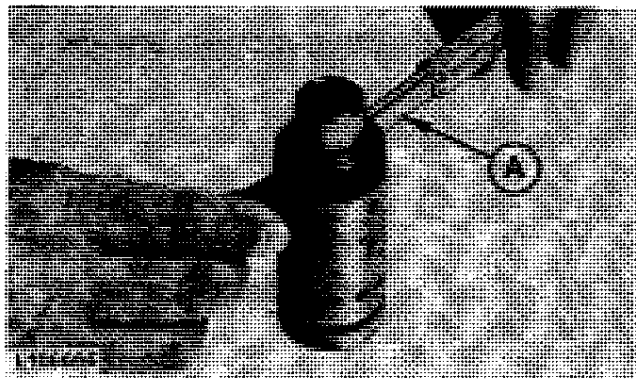
Outer: One straight spring (B) on each side.



L101037
L101037-LA76005AE-121184

INSTALLING LEAF SPRINGS

Press leaf spring ends together. Insert leaf springs in valve assembly using special tool KML 10018-3 (A). Avoid tilting.

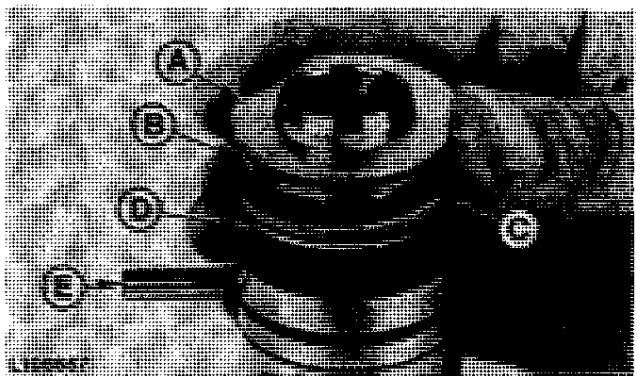


L106666-LA76005AE-121184

INSTALLING CROSS PIN AND THRUST BEARING

Insert cross pin (E) in valve assembly. Install retaining ring (D), bearing race (C), thrust bearing (B) and axial washer (A).

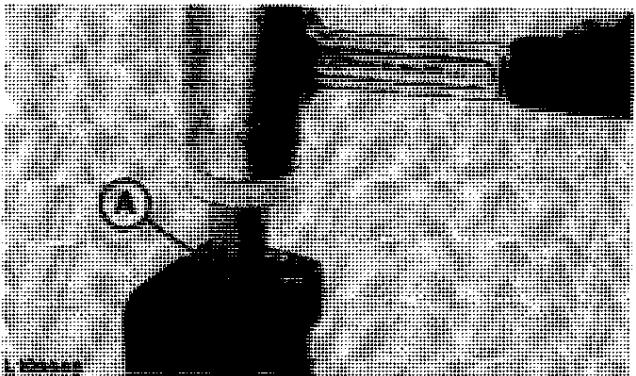
NOTE: Chamfered side of bearing race (C) must face towards top surface of valve spool.



L106667-LA76005AE-121184

INSTALLING SEAL RING

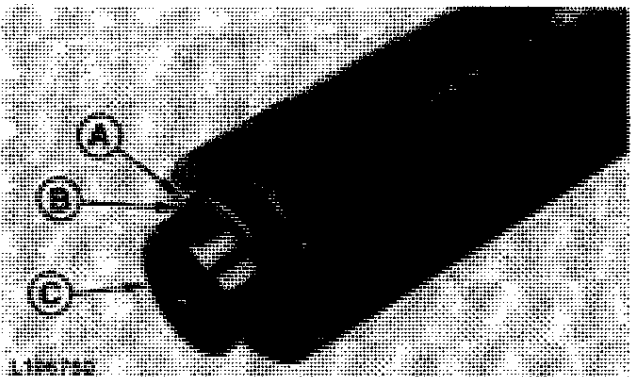
Using a hammer and suitable round steel bar, lightly drive new seal ring (A) into housing groove.



L106668-LA76005AE-121184

POSITIONING O-RING AND BACK-UP RING ON SPECIAL TOOL

Coat O-ring (A) and back-up ring (B) with grease and slide onto small piston KML 10018-5 (C).



L106750-LA76005AE-121184

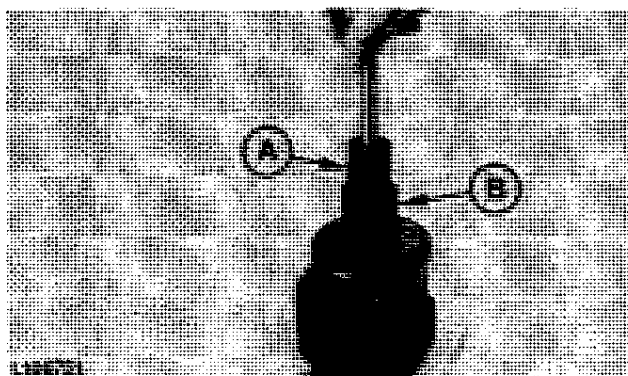
INSTALLING O-RING AND BACK-UP RING

Press sleeve (B) of special tool KML10018-2 (A) up to stop into steering valve housing.

Then slide large piston into sleeve up to stop.

Pull sleeve out of steering valve together with large piston.

NOTE: Small piston remains in steering valve until it is pushed out when spool and sleeve are installed.



L106751-LB26005AE-010488

INSTALLING VALVE SPOOL AND SLEEVE

IMPORTANT: Make sure that cross pin of valve spool and sleeve is horizontal.

Coat valve assembly with oil.

Lightly push valve spool and sleeve into housing bore, applying a turning movement.

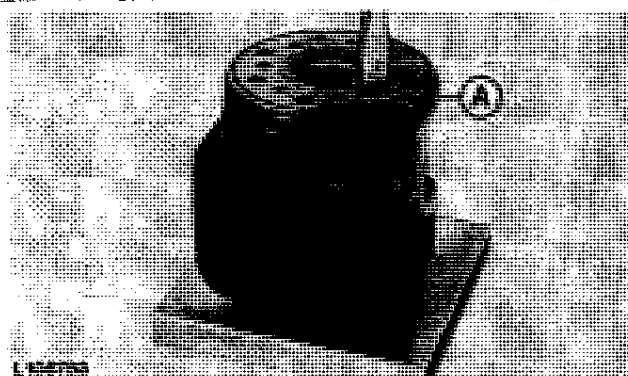


L106752-LA76005AE-121184

INSTALLING CHECK VALVE

Place ball of check valve into the bore provided.

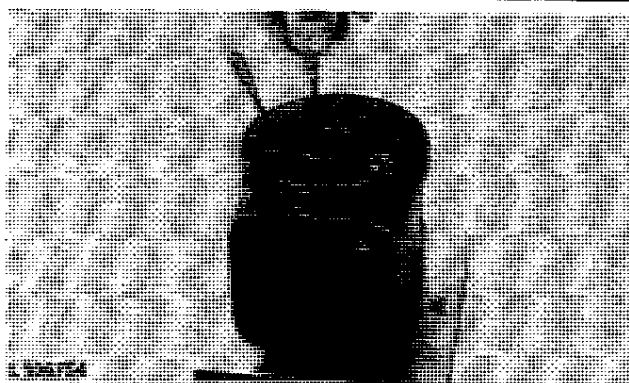
Screw in threaded bushing (A) until a slight resistance is felt. Threaded bushing must not protrude above housing surface.



L106753-LA76005AE-121184

INSTALLING SUCTION VALVES

Insert both suction valves (spring pin assemblies with balls) in bores as shown.



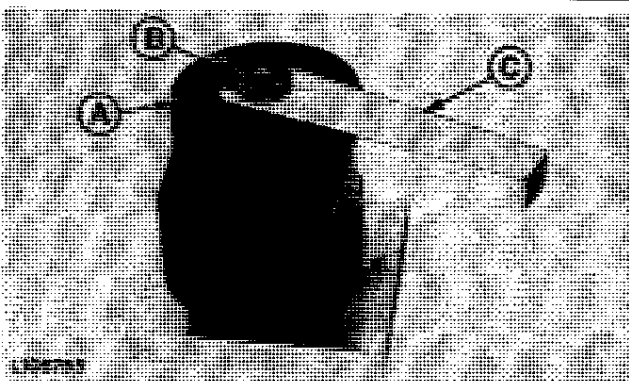
L106754-LA76005AE-121184

INSTALLING DISTRIBUTOR PLATE AND DRIVE SHAFT

Place O-ring in groove of valve housing.

Install distributor plate (A) so that bores are aligned with corresponding housing bores.

Insert drive shaft (B) and hold with special tool KML10018-4 (C).



L106755-LB26005AE-010488

ASSEMBLING METERING UNIT

Coat O-rings of stator (A) with grease.

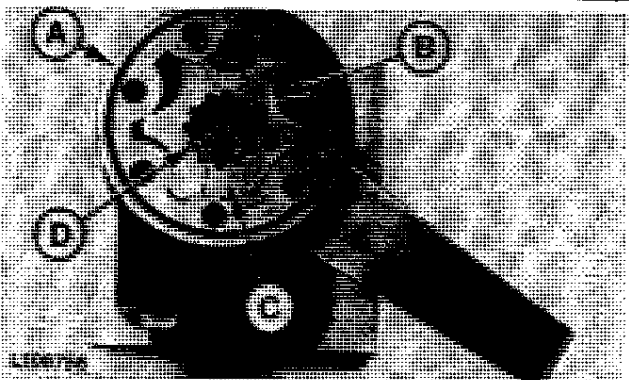
IMPORTANT: Rotor (B) and cross pin (C) must be positioned as shown to ensure reliable functioning of steering system.



CAUTION: Avoid accidents! Cross pin must be in position shown.

A-Stator
B-Rotor

C-Cross pin
D-Drive shaft



L106756-LB26005AE-010488

INSTALLING METERING UNIT COVER

Position spacer ring in rotor.

Tighten the cap screws crosswise to 30 to 35 Nm (23 to 25 ft-lb).

NOTE: Screw cap screw with spring pin into bore with threaded bushing.



L106757-LB36005AE-010888

ADJUSTING DOUBLE-ACTING SHOCK VALVES

NOTE: Double-acting shock valves must be readjusted if they have been removed.

Attach adapters JT03248 (D) and L38860 (C) to hydraulic hose of hand pump D-01019AA. Connect hydraulic hose (B) to connection "R" or "L" of steering valve and to adapter L38860.

By means of hand pump obtain a pressure of 21000 kPa (210 bar; 3050 psi). Valve is correctly set if pressure then drops abruptly.

IMPORTANT: After having adjusted the shock valves there is still oil trapped under high pressure between adapters. Therefore turn inner spool (E) to the left and right so that oil can escape.

- A—Hand pump D-01019AA with gauge and hydraulic hose
- B—Steering valve hydraulic hose
- C—Adapter L38860
- D—Adapter JT03248
- E—Inner spool
- F—Double-acting shock valve (right-hand lock)
- G—Double-acting shock valve (left-hand lock)

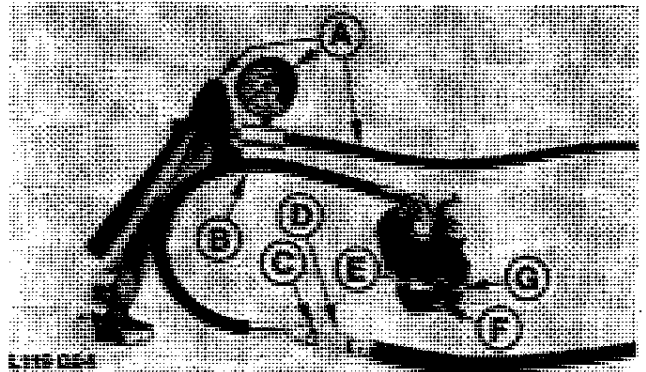
If necessary, adjust the double-acting shock valves as follows:

Remove threaded plug of shock valve (F and G) and coat adjusting screw below with LOCTITE 242 (L41475).

Screw adjusting screw in or out until a pressure of 21000 kPa (210 bar; 3050 psi) is obtained.

NOTE: Turning adjusting screw clockwise increases pressure whereas turning counter-clockwise reduces pressure.

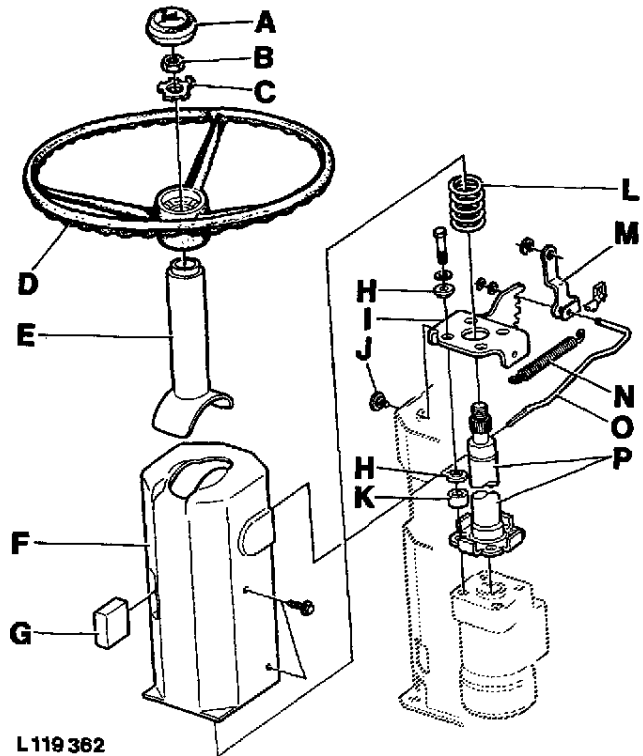
Tighten threaded plug (D) to 30 Nm (23 ft-lb).



STEERING COLUMN - WITHOUT CAB OR WITH MC1 CAB, EXPLODED VIEW

A-Steering column cover
B-Hex. nut
C-Locking tab
D-Steering wheel
E-Steering column cover
F-Cover
G-Adjuster
H-Rubber damper (8 used)
I-Support

J-Special hex. socket screw (2 used)
K-Spacer bushing (4 used)
L-Spring
M-Lever
N-Spring
O-Connecting rod
P-Steering column

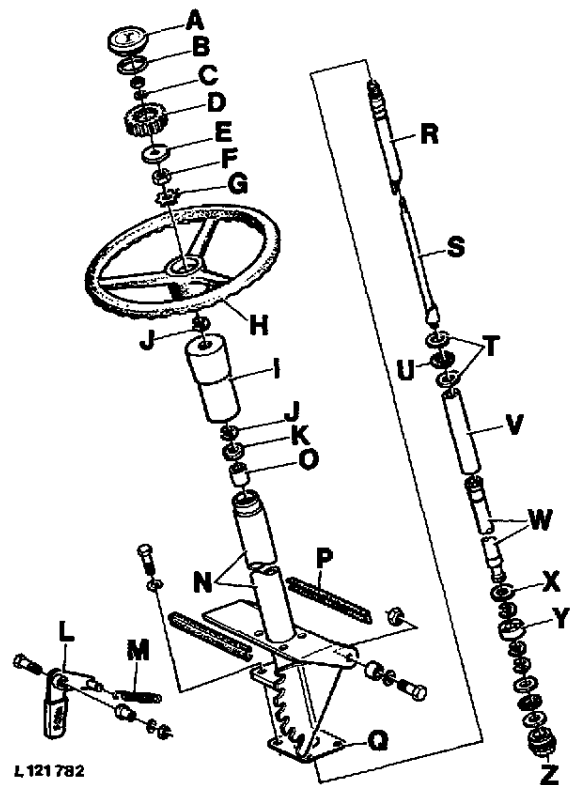


L119362-LB36005AE-010888

STEERING COLUMN - WITH SG2 CAB, EXPLODED VIEW

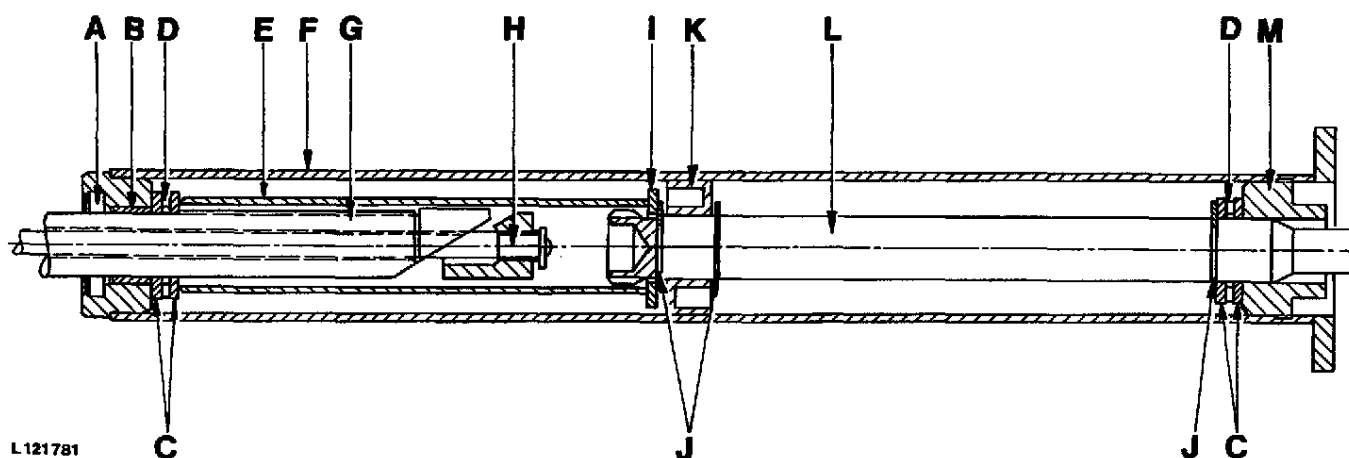
A-Steering column cover
B-O-ring
C-Snap ring
D-Adjuster wheel
E-Washer
F-Hex. nut
G-Locking tab
H-Steering wheel
I-Steering column extension
J-Snap ring (5 used)
K-Seal ring
L-Tilt release lever
M-Spring
N-Steering column tube

O-Bushing
P-Sealing strip (2 used)
Q-Gasket
R-Upper steering shaft
S-Rod for steering column extension
T-Thrust washer (4 used)
U-Thrust bearing (2 used)
V-Coupler
W-Lower steering shaft
X-Washer
Y-Plastic bushing
Z-Hollow screw



L121782-LB26005AE-010490

STEERING COLUMN, WITH SG2 CAB, SECTIONAL VIEW



L121781

A-Seal ring
B-Bushings
C-Thrust washers (4 used)
D-Thrust bearing (2 used)

E-Coupler
F-Steering column tube
G-Upper steering shaft
H-Steering column extension

I-Washer
J-Snap ring (3 used)
K-Plastic bushing
L-Lower steering shaft
M-Hollow screw

L121781-LB26005AE-010490

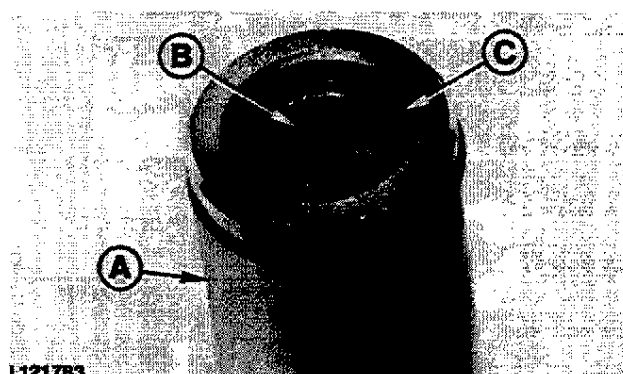
INSTALLING BUSHING AND SEAL RING (With SG2 Cab)

Press bushing (B) flush into steering column tube (A).
Install seal ring (C) with sealing lip facing up.

NOTE: Coat seal ring and bushing with JOHN DEERE EP Multipurpose Grease.

Install steering shaft into steering column tube (see "Steering Column Exploded View").

Before installation coat all parts with JOHN DEERE EP Multipurpose Grease.

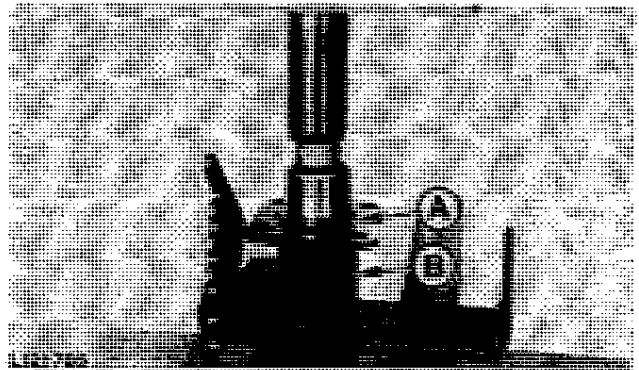


L121783

L121783-LB26005AE-010490

INSTALLING HOLLOW SCREW (Tractors with SG2 Cab)

Smoothly press in hollow screw (A) until the last tread of the self tapping hollow screw is flush with the tube end (B).

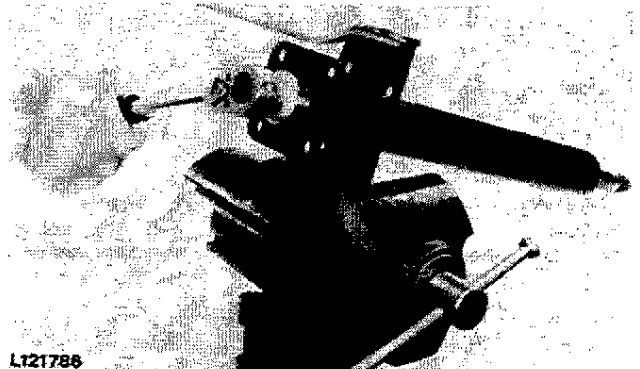


L121785-LB26005AE-010490

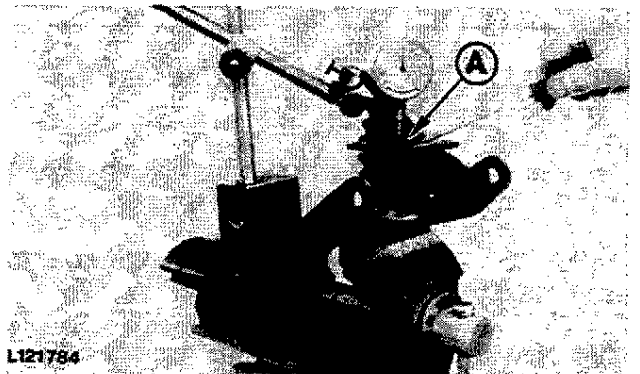
ADJUSTING THRUST BEARING (Tractors with SG2 Cab)

Screw in hollow screw until there is no end play at the lower steering shaft (A).

Check if steering shaft assembly turns freely.



L121786



L121786

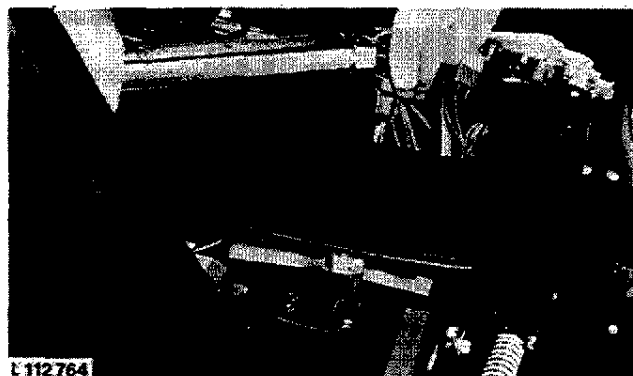
L121786,L121784-LB26005AE-010490

Hydrostatic Steering

INSTALLING STEERING VALVE

Evenly tighten cap screws securing steering valve crosswise to 50 Nm (35 ft-lb).

NOTE: Install steering valve (see "Steering Column Exploded View").

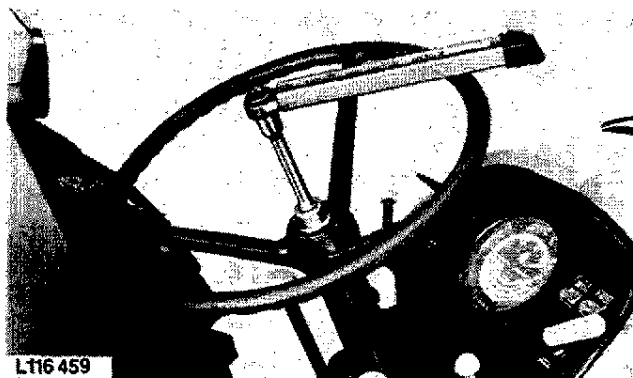


L112764, L116458-LB26005AE-010490

SECURING STEERING WHEEL

Tighten hex. nut securing steering wheel to 70 Nm (50 ft-lb).

Secure cap screw with locking tab.

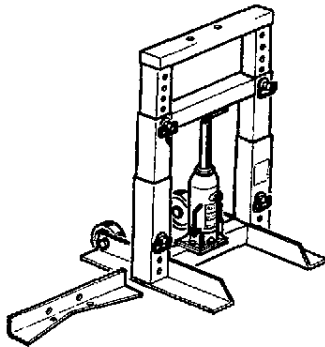


L116459-LB26005AE-010490

Group 10 STEERING CYLINDER (Without Front Wheel Drive)

SPECIAL TOOLS

JT05725



A

JDH-6



B

L112698

A—Supporting tractor

B—Removing seal rings

L112698-LB26010AE-010886

TORQUES FOR HARDWARE

Piston to piston rod:

– Steering cylinder AR102516	80 Nm (60 ft-lb)
– Steering cylinder AL36563	250 Nm (185 ft-lb)
– Steering cylinder AL60895	125 Nm (90 ft-lb)

Ring nut on piston rod guide

(steering cylinder AR102516)	150 Nm (110 ft-lb)
------------------------------------	--------------------

Steering cylinder to axle knee, slotted nut	100 Nm (75 ft-lb)
---	-------------------

Axle knee to front axle center, cap screws	400 Nm (300 ft-lb)
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Front wheel to wheel hub, attaching bolts	150 Nm (110 ft-lb)
---	--------------------

NOTE: If cotter pin cannot be inserted in slotted nut when tightened to specified torque, tighten nut to next slot and secure with cotter pin.

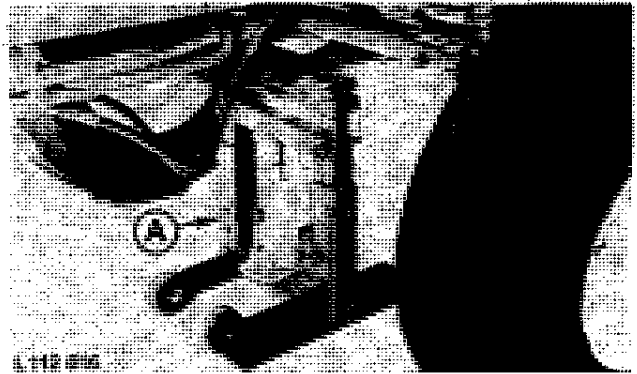
LENKZYL-LB38010AE-010888

Steering Cylinder (Without Front Wheel Drive)

SUPPORTING TRACTOR SECURELY

Using universal support stand JT05725 (A), support tractor securely under the front axle.

Remove front right-hand wheel.

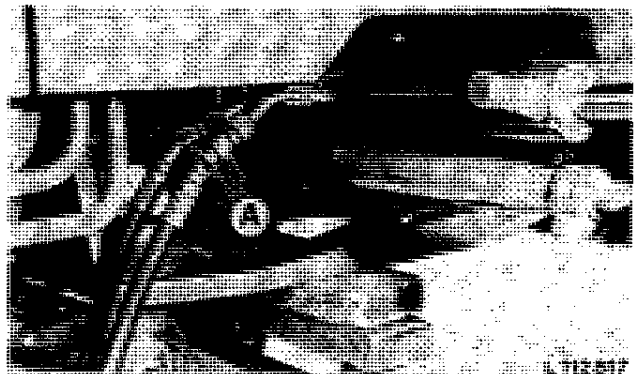


L112816-LB26010AE-010886

DISCONNECTING HYDRAULIC LINES

Disconnect steering cylinder hydraulic lines at connectors (A).

NOTE: Immediately plug all hydraulic line openings with plastic plugs.

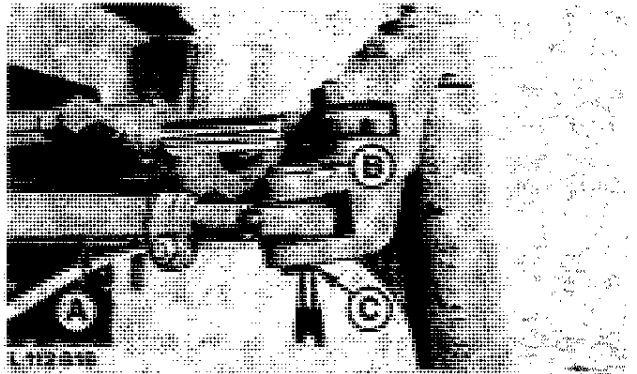


L112817-LB26010AE-010886

DISCONNECTING TIE ROD

Remove snap ring (C) and pull out pin (B).

Disconnect tie rod (A).



L112818-LB26010AE-010886

REMOVING AXLE KNEE

Remove cap screws (A) and lift out axle knee.



L112819-LB26010AE-010886

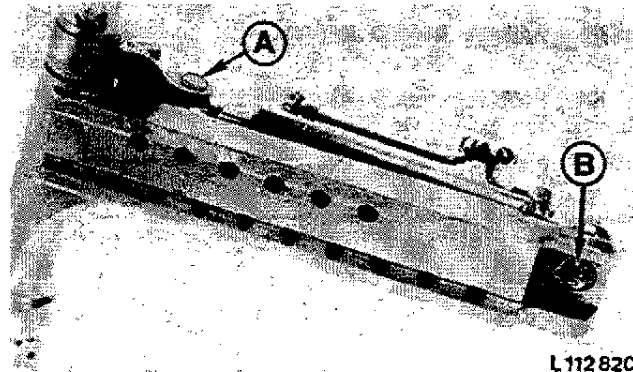
Steering Cylinder (Without Front Wheel Drive)

REMOVING STEERING CYLINDER

Remove snap ring and pull out pin (A).

Remove slotted nut (B).

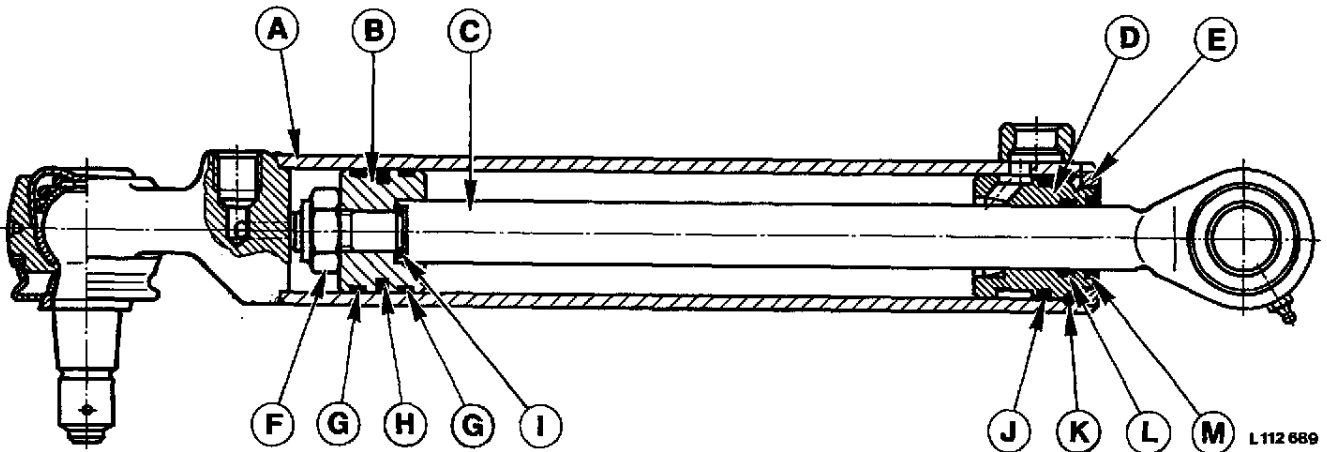
Lift out steering cylinder.



L112 820

L112820-LB26010AE-010886

DOUBLE-ACTING STEERING CYLINDER (AR102516), SECTIONAL VIEW



L112 669

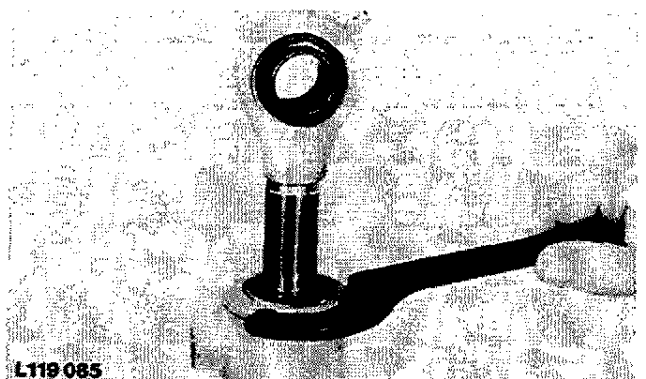
A-Cylinder barrel
B-Piston
C-Piston rod
D-Piston rod guide
E-Ring nut

F-Self-locking nut
G-Wear ring
H-Piston seal ring
I-O-ring

J-O-ring
K-Snap ring
L-Piston rod seal
M-Wiper seal

L112669-LB36010AE-010287

REMOVING RING NUT



L119 085

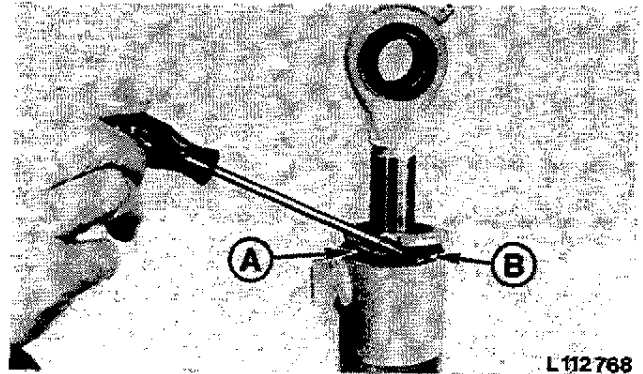
L119085-LB26010AE-010488

REMOVING SNAP RING

Drive piston rod guide (A) a little into cylinder.

Remove snap ring (B).

Pull piston rod complete with piston rod guide out of cylinder.



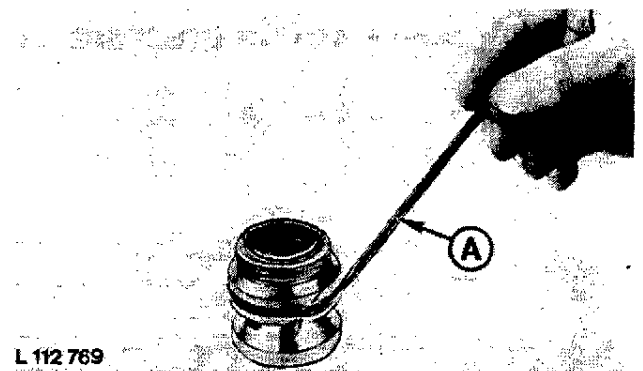
L112768-LB26010AE-010886

REPLACING SEAL RINGS

Remove piston seal ring, piston rod seal and O-ring, using seal hook JDH-6 (A).

Install new seal rings.

NOTE: Position wear rings when reinstalling piston.



L112769-LB26010AE-010886

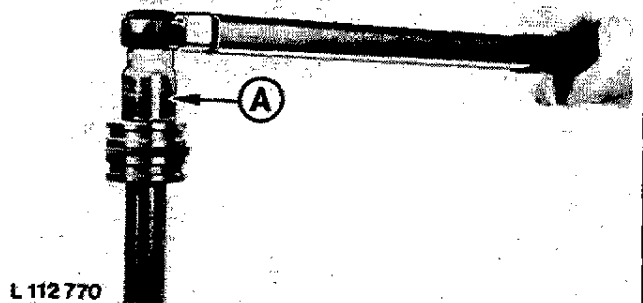
ASSEMBLING STEERING CYLINDER

Assemble ring nut, piston rod guide and piston on the piston rod.

Tighten self-locking nut to 80 Nm (60 ft-lb).

Install complete piston rod assembly and secure.

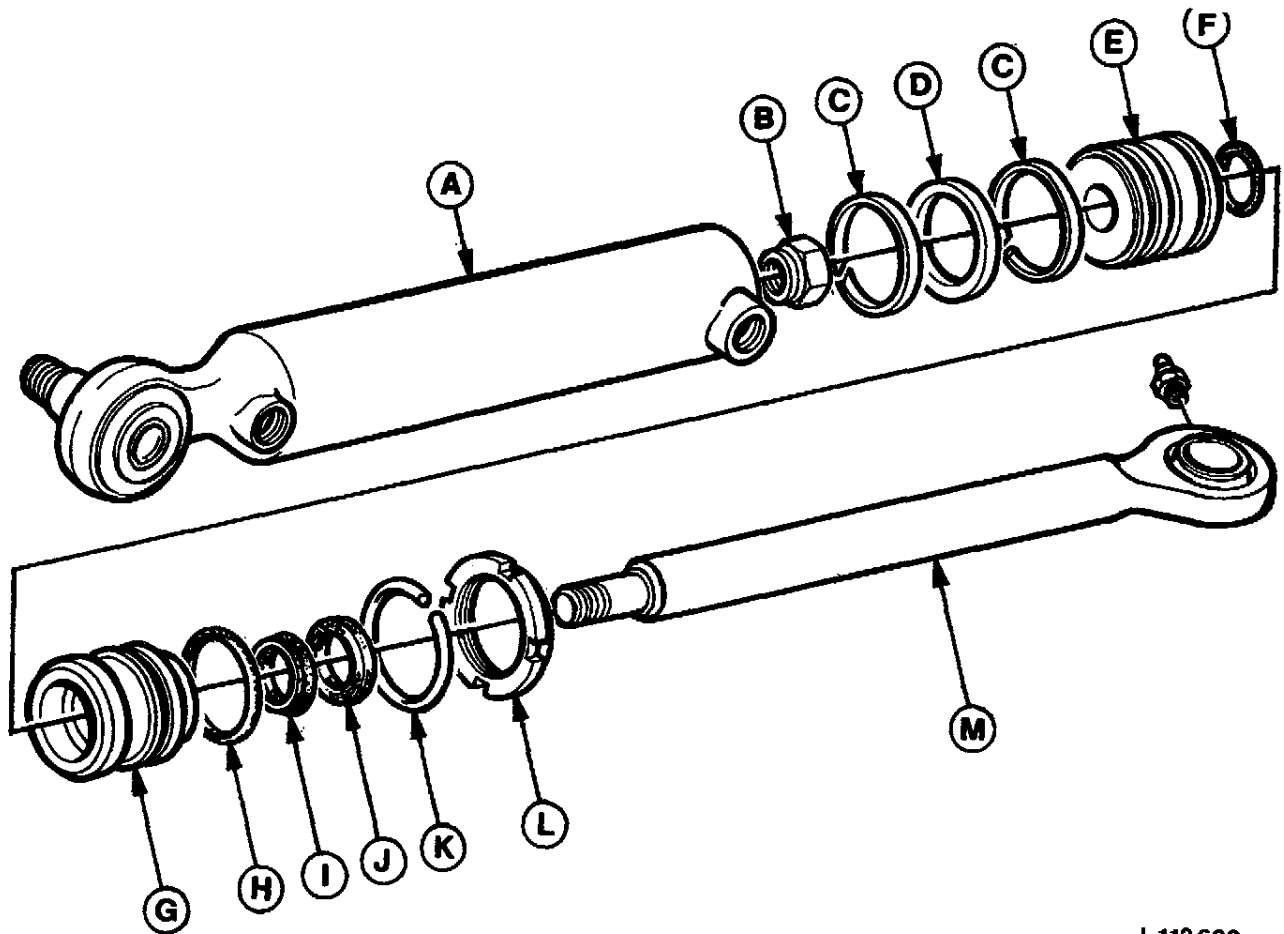
Tighten ring nut to 150 Nm (110 ft-lb).



L112770-LB26010AE-010886

Steering Cylinder (Without Front Wheel Drive)

**DOUBLE-ACTING STEERING CYLINDER (AR 102516),
EXPLODED VIEW**



L 112 690

A—Cylinder barrel
B—Self-locking nut
C—Wear ring
D—Piston seal

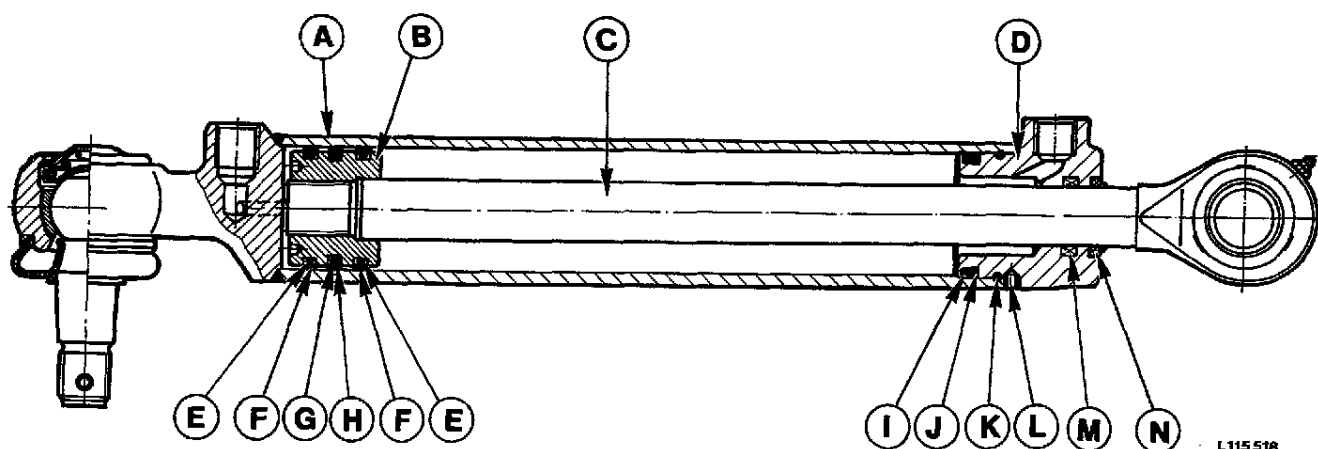
E—Piston
F—O-ring
G—Piston rod guide

H—O-ring
I—Piston rod seal
J—Wiper seal

K—Snap ring
L—Ring nut
M—Piston rod

L112690-LB36010AE-010287

DOUBLE-ACTING STEERING CYLINDER (AL36563), SECTIONAL VIEW



L115518

A-Cylinder barrel
B-Piston
C-Piston rod
D-Piston rod guide
E-O-ring (when equipped)

F-Wear ring
G-O-ring
H-Piston seal ring
I-O-ring

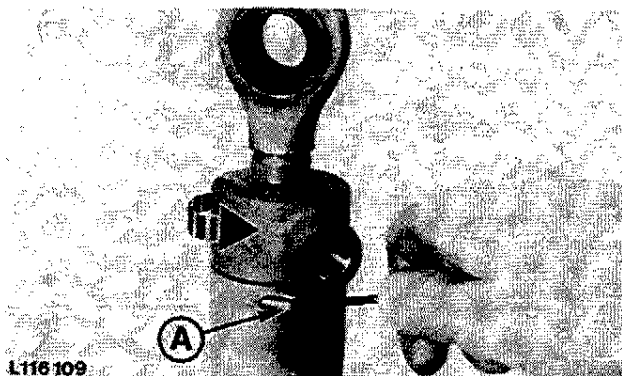
J-Back-up ring
K-Locking wire
L-Grub screw
M-Piston rod seal
N-Wiper seal

L115518-LB26010AE-010488

REMOVING LOCKING WIRE

Remove grub screw.

Turn piston rod guide and pull end of locking wire (A) through bore using a screwdriver. Continue to rotate piston rod guide and completely remove locking wire. Pull piston rod complete with piston rod guide out of cylinder barrel.



L116109

L116109-LB36010AE-010287

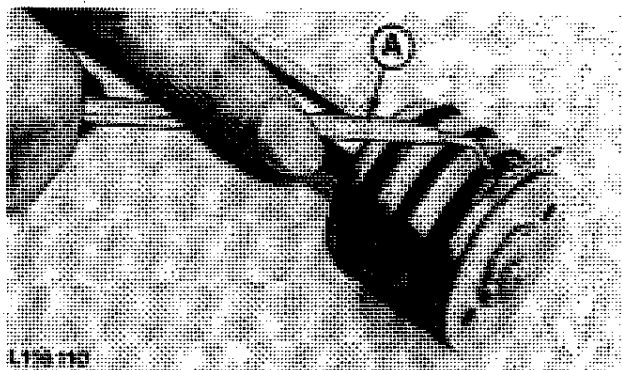
REMOVING PISTON SEAL RINGS

Remove seal ring and O-rings from piston using seal hook JDH-6 (A).

NOTE: Depending upon type of piston, there are three O-rings or one O-ring (center groove).

Unscrew piston from piston rod.

NOTE: Heat piston before removing as it is sealed with Loctite.



L116110

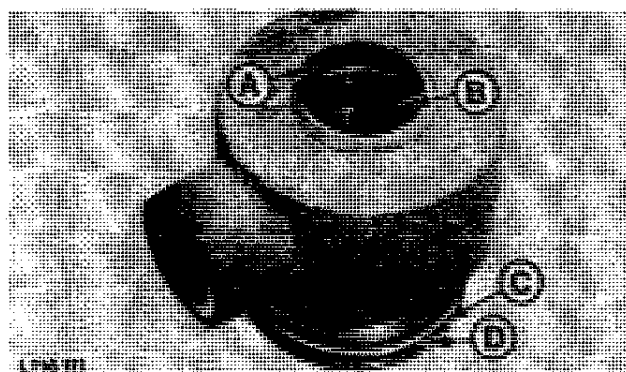
L116110-LB26010AE-280289

Steering Cylinder (Without Front Wheel Drive)

REPLACING SEAL RINGS

Replace seal rings of piston rod guide.

- A-Wiper seal
- B-Piston rod seal ring
- C-Back-up ring
- D-O-ring



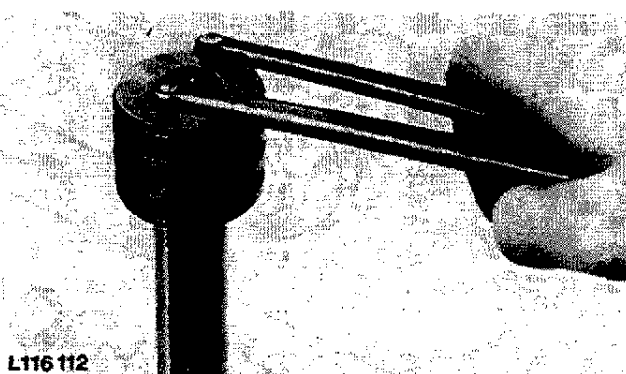
L116111-LB36010AE-010287

SECURING PISTON

Coat thread of piston rod with Loctite 601 (L41477) and screw on piston. Secure piston with center punch mark.

Install O-rings or O-rings, piston seal ring and wear rings.

NOTE: Heat piston seal ring to approx. 100°C (210°F) in oil or water before installing.



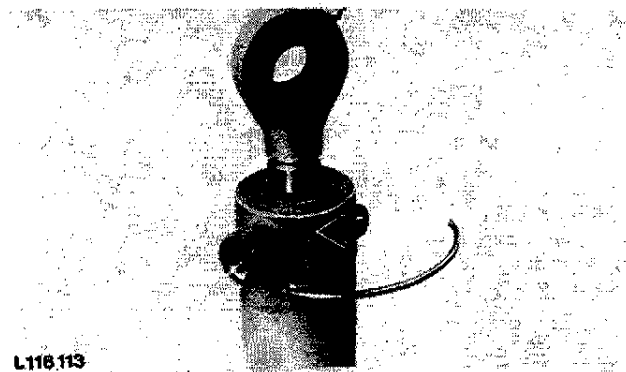
L116112-LB26010AE-010488

ASSEMBLING STEERING CYLINDER

Install assembled piston rod in cylinder barrel.

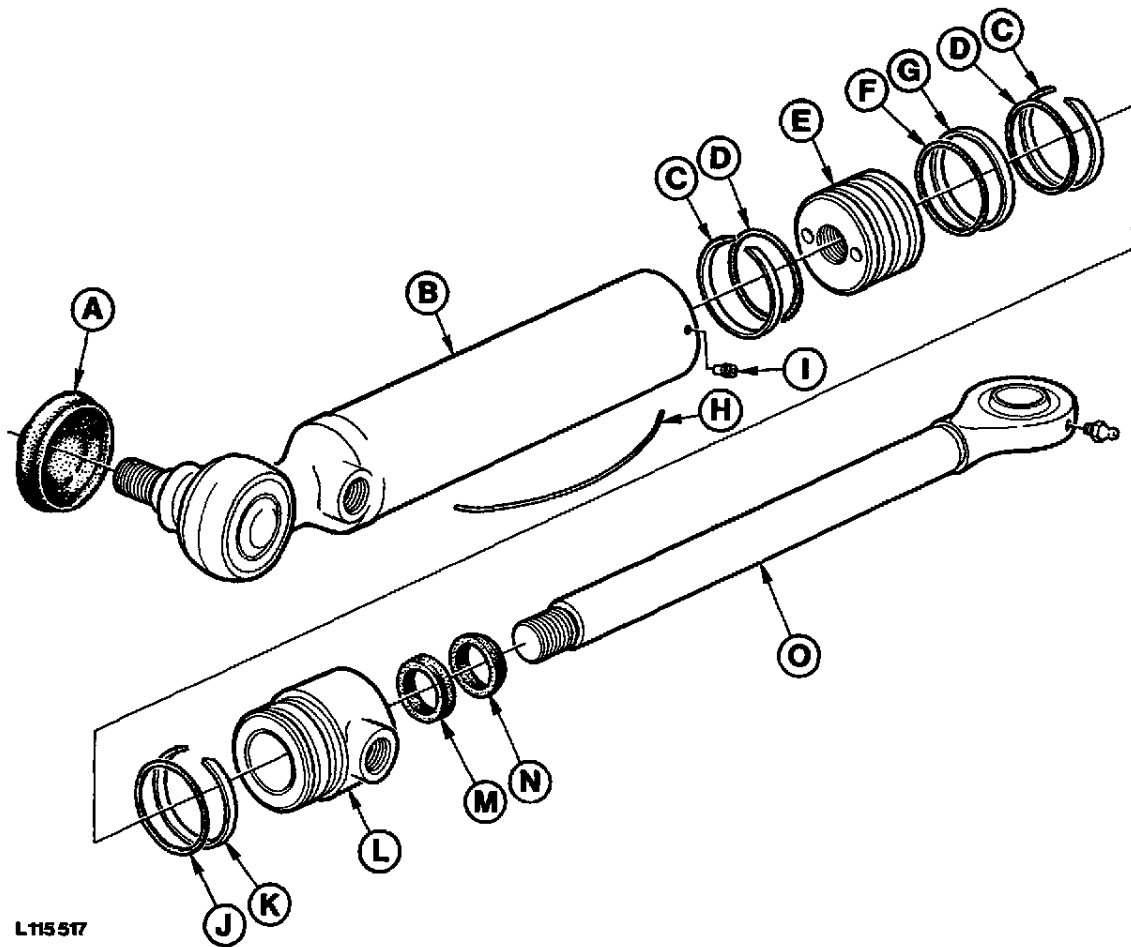
Insert locking wire through bore in cylinder barrel and hook into bore of piston rod guide. Draw locking wire into cylinder barrel by rotating piston rod guide.

Insert grub screw and secure with a center punch mark.



L116113-LB36010AE-010287

DOUBLE-ACTING STEERING CYLINDER (AL36563), EXPLODED VIEW



A-Rubber boot
B-Cylinder barrel
C-Wear ring
D-O-ring

E-Piston
F-O-ring
G-Piston seal ring
H-Locking wire

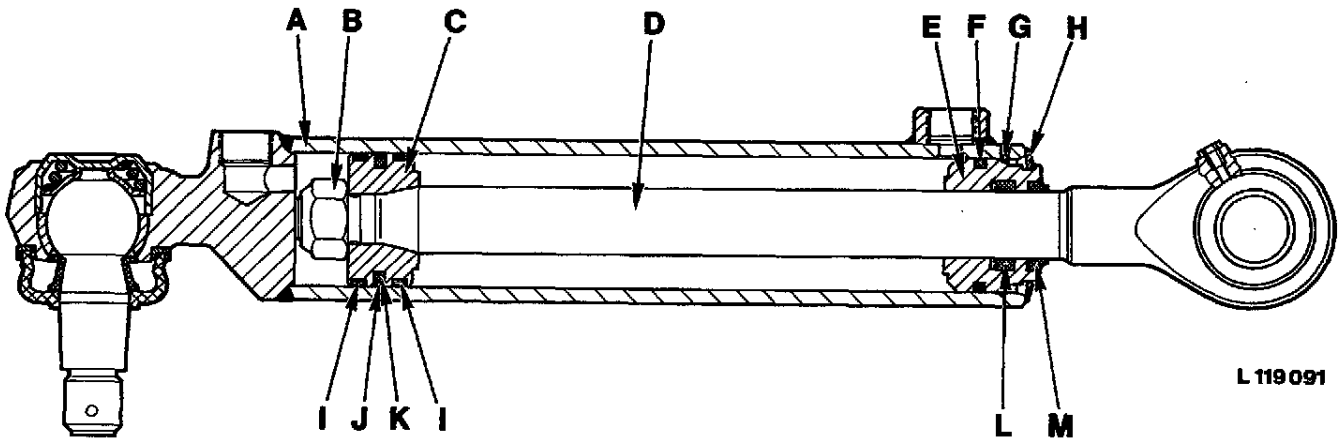
I-Grub screw
J-O-ring
K-Back-up ring

L-Piston rod guide
M-Piston rod seal ring
N-Wiper seal
O-Piston rod

L115517-LB36010AE-000287

Steering Cylinder (Without Front Wheel Drive)

DOUBLE-ACTING STEERING CYLINDER (AL60895), SECTIONAL VIEW



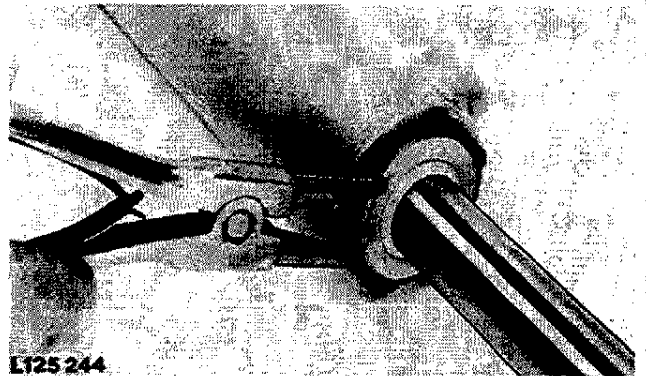
A-Cylinder barrel
B-Self-locking nut
C-Piston
D-Piston rod
E-Piston rod guide

F-O-ring
G-Snap ring
H-Snap ring
I-Wear ring

J-Piston seal ring
K-O-ring
L-Piston rod seal
M-Wiper seal

L119091-LB36010AE-010888

REMOVING OUTER SNAP RING



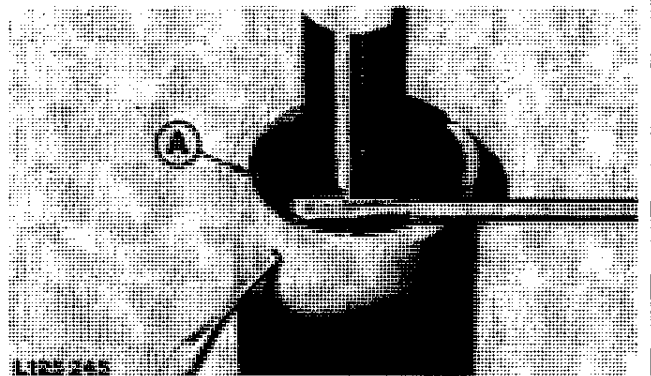
L125244-LB36010AE-010888

REMOVING INNER SNAP RING

Drive piston rod guide a little into cylinder barrel.

Remove snap ring (A).

Pull piston rod complete with piston rod guide out of cylinder barrel.



L125245-LB36010AE-010888

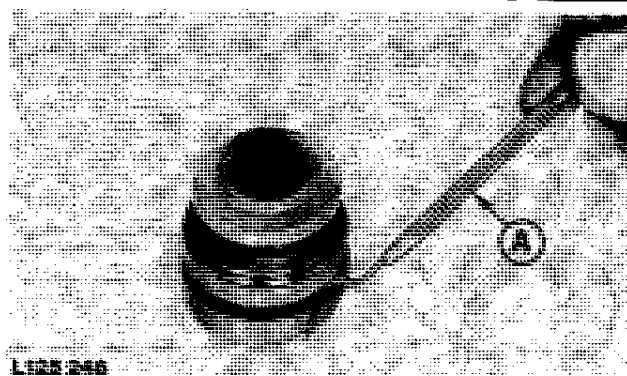
Steering Cylinder (Without Front Wheel Drive)

REPLACING SEAL RINGS

Remove piston seal ring, piston rod seal and O-ring using seal hook JDH-6 (A).

Install new seal rings.

NOTE Position wear rings when reinstalling piston.



L125 246

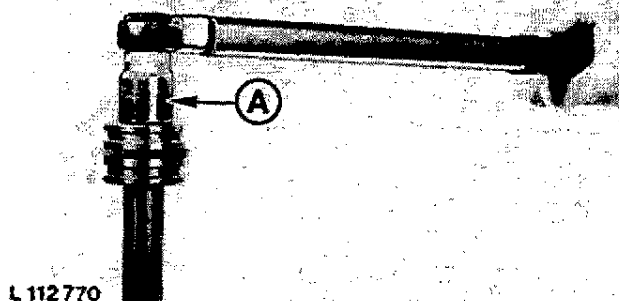
L125246-LB36010AE-010888

ASSEMBLING STEERING CYLINDER

Assemble piston rod guide and piston on piston rod.

Tighten self-locking nut to 125 Nm (90 ft-lb).

Install complete piston rod assembly.



L 112 770

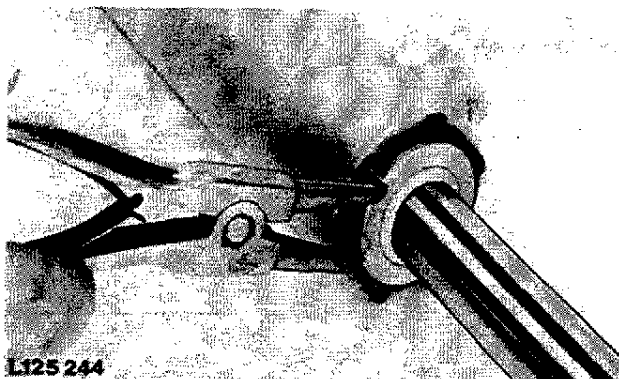
L112770-LB36010AE-010888

INSTALLING SNAP RINGS

Install inner snap ring.

Pull piston rod so that piston rod guide moves outwards.

Install outer snap ring.

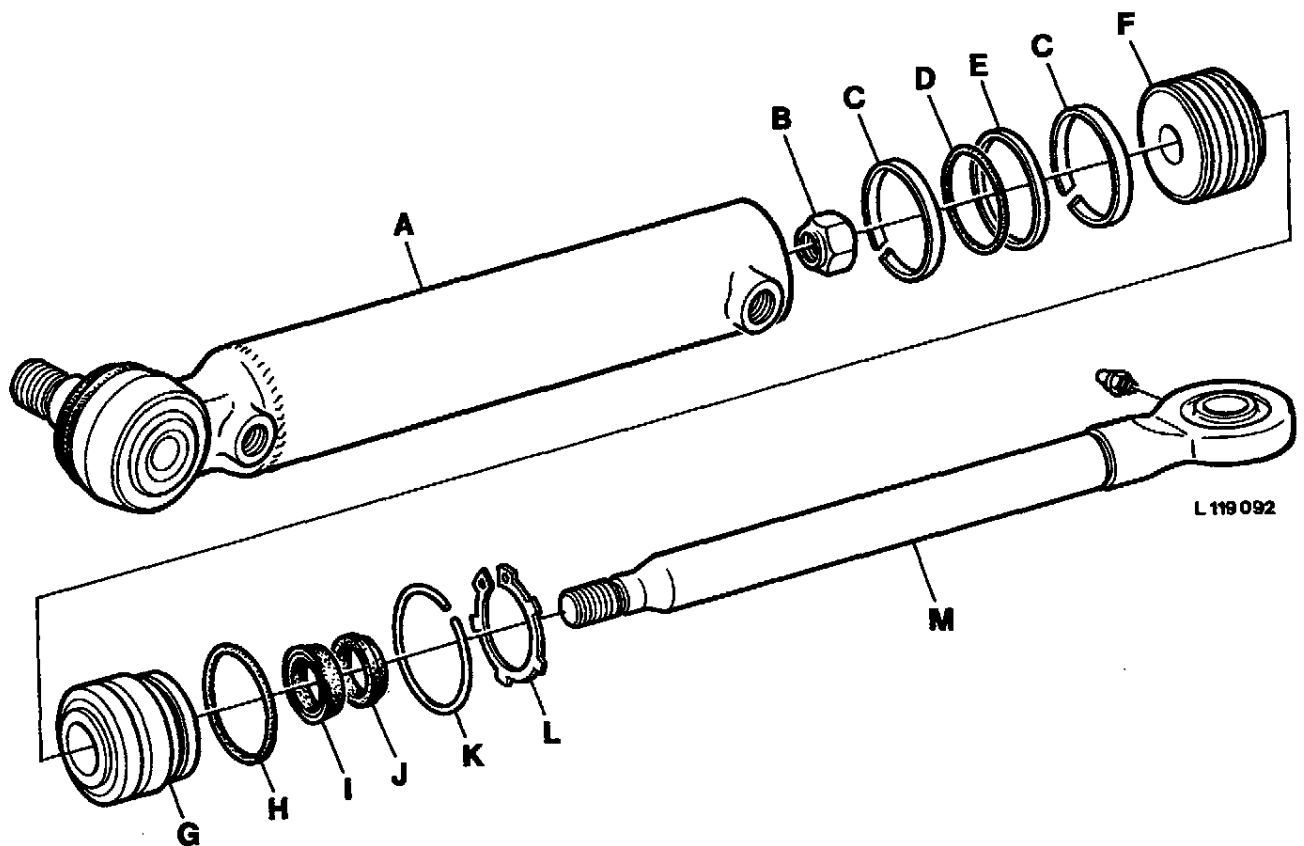


L125 244

L125244-LB36010AE-010888

Steering Cylinder (Without Front Wheel Drive)

DOUBLE-ACTING STEERING CYLINDER (AL60895), EXPLODED VIEW



L 119 092

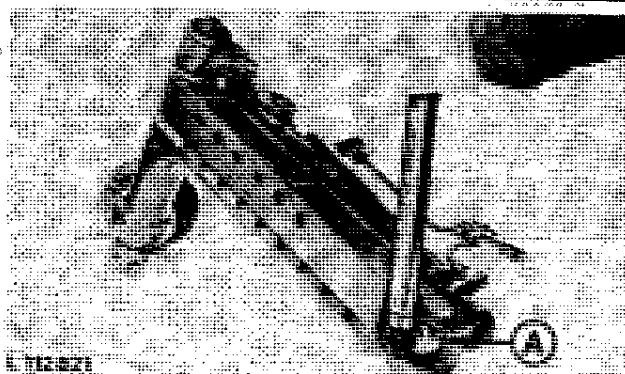
L119092-LB36010AE-010888

Steering Cylinder (Without Front Wheel Drive)

INSTALLING STEERING CYLINDER

Tighten slotted nut (A) to 100 Nm (75 ft-lb) and insert cotter pin.

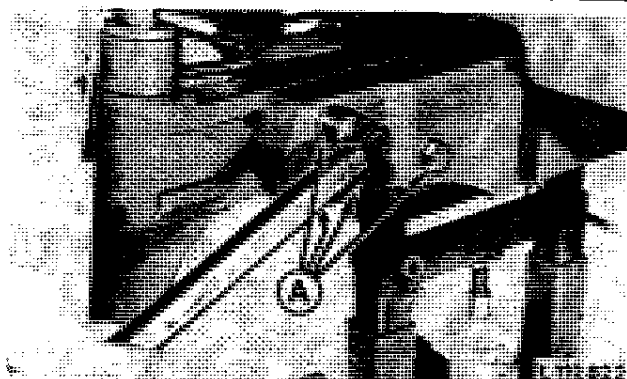
NOTE: If cotter pin cannot be inserted in slotted nut when tightening to specified torque, then turn nut to next slot and secure with cotter pin.



L112821-LB26010AE-010886

INSTALLING AXLE KNEES

Tighten cap screws (A) to 400 Nm (300 ft-lb).

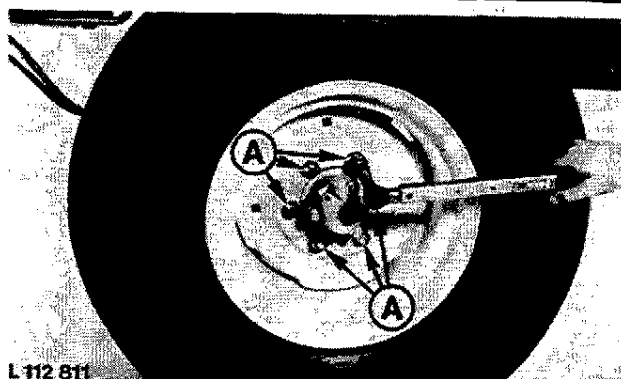


L112822-LB26010AE-010886

INSTALLING FRONT WHEEL

Tighten attaching bolts (A) to 150 Nm (110 ft-lb).

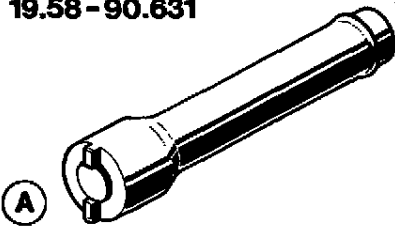
To bleed steering system, turn steering wheel to-and-fro several times with engine running.



L112811-LB36010AE-010888

SPECIAL TOOLS

19.58 - 90.631



A

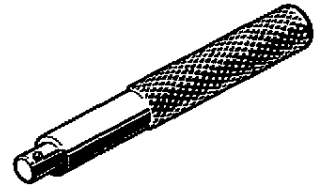
JD-252

B

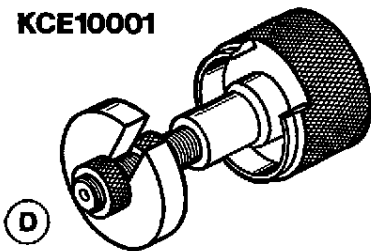


JDG 537

C



KCE10001



D

L125 241

A—Installing threaded bushings

B—Driving in oil seals and bushings

C—Driving in oil seals and bushings

D—Adjusting valve housing assemblies

L125241-LB36015AE-010888

SPECIFICATIONS

Clearance between special washer and valve sleeve
in valve housing assembly 0.03 to 0.07 mm (0.0012 to 0.0027 in.)

Clearance between upper snap ring and thrust
washer, max. 0.1 mm (0.004 in.)

POWST-LB36015AE-010287

TORQUES FOR HARDWARE

Steering piston to piston rod	340 Nm (250 ft-lb)
Threaded bushing in steering valve housing	100 Nm (75 ft-lb)
Steering column extension to threaded bushing	100 Nm (75 ft-lb)
Threaded bushing in steering column extension (up to Tractor Serial No. 625 276L)	100 Nm (75 ft-lb)
Hex. nut on threaded bushing (up to Tractor Serial No. 625 276L)	40 Nm (30 ft-lb)
Steering wheel to steering wheel shaft, hex. nut	70 Nm (50 ft-lb)
Steering housing assembly to clutch housing, cap screws	50 Nm (35 ft-lb)
Lock plate to steering shaft, cap screw	15 Nm (11 ft-lb)
Steering shaft cover to clutch housing, cap screws ...	70 Nm (50 ft-lb)
Steering arm to steering shaft, cap screw	325 Nm (240 ft-lb)
Drag link to steering arm, slotted nuts	90 Nm (65 ft-lb)

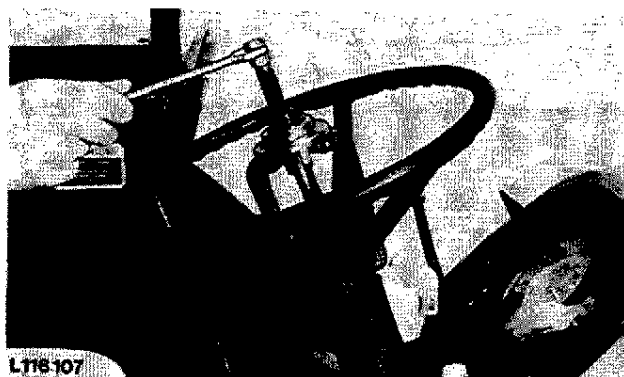
NOTE: If cotter pin cannot be inserted into slotted nut when tightened to specified torque, tighten nut to next slot and secure with cotter pin.

POWST-LB36015AE-010888

PRELIMINARY WORK

Without Cab

Use a puller to remove steering wheel.
Remove cover plate above shift cover.
Remove batteries.



L116107-LB36015AE-010287

With MC1 Cab

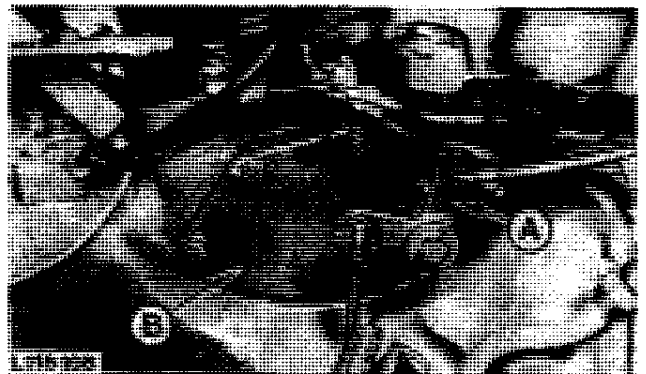
Remove MC1 cab, see Section 10, Group 25.

POWST-LB38015CE-010287

REMOVING STEERING SHAFT COVER

Remove speed control linkage (A) if connected to steering shaft cover (B).

Remove steering shaft cover.

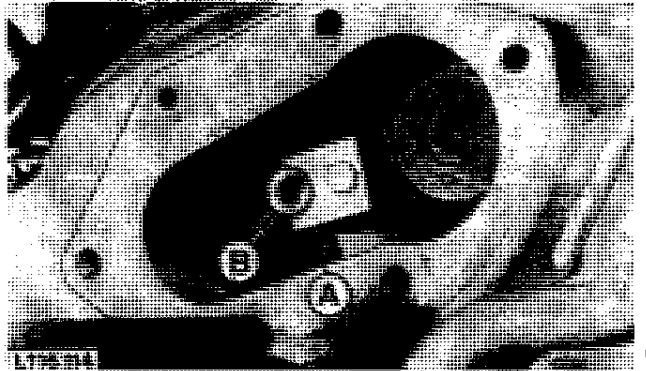


L116108-LB36015AE-010287

SEPARATING CONNECTING ROD AND STEERING SHAFT

Remove lock plate (A).

Pull out pin (B).



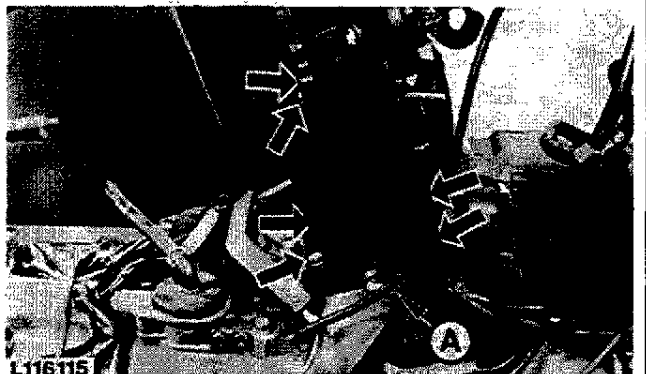
L116114-LB36015AE-010287

REMOVING STEERING HOUSING

Disconnect hydraulic line (A) at steering housing.

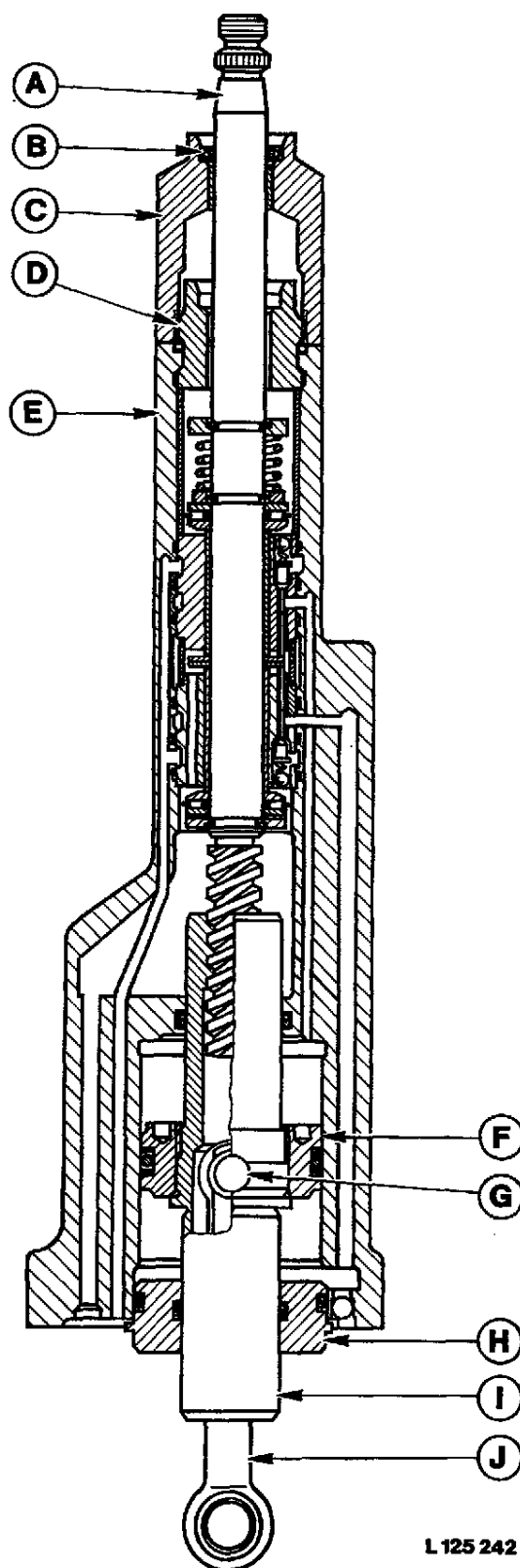
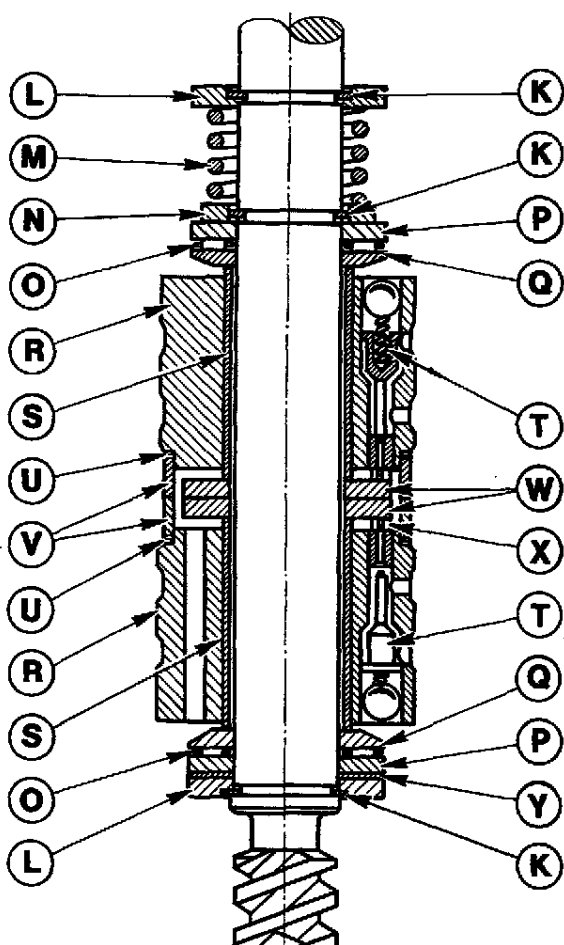
Remove cap screws (see arrows) and lift off steering housing.

Remove steering shaft and steering shaft arm.



L116115-LB36015AE-010287

POWER STEERING, SECTIONAL VIEW



- | | |
|-----------------------------|--------------------|
| A-Steering column shaft | N-Washer |
| B-Oil seal | O-Thrust bearing |
| C-Steering column extension | P-Thrust washer |
| D-Threaded bushing | Q-Thrust washer |
| E-Steering housing | R-Valve housing |
| F-Steering piston | S-Operating sleeve |
| G-Pin | T-Steering valve |
| H-Piston rod guide | U-Shims |
| I-Steering piston rod | V-Spacer bushing |
| J-Connecting rod | W-Special washer |
| K-Snap ring | X-Valve sleeve |
| L-Special washer | Y-Shims |
| M-Spring | |

L 125 242

L125242-LB36015AE-010888

REMOVING STEERING COLUMN EXTENSION

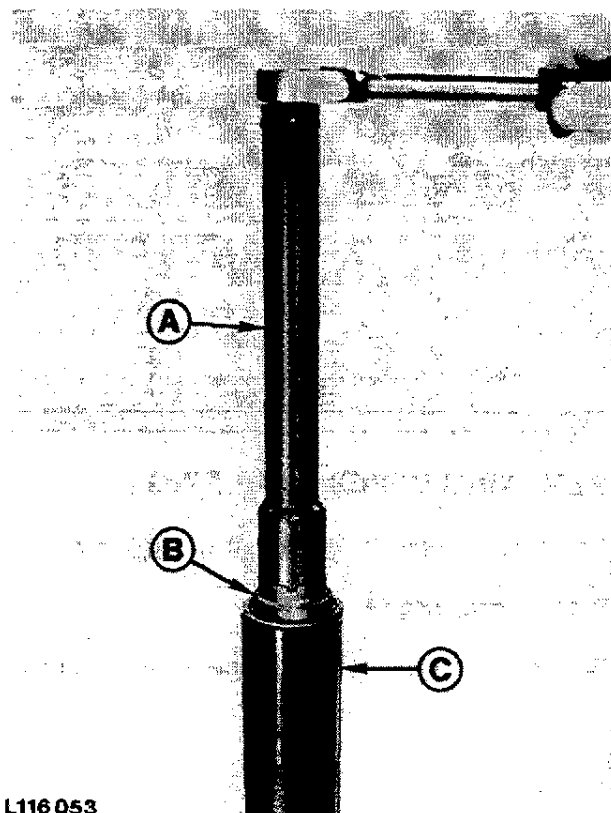
Up to Tractor Serial No. 625 276L

Remove hex. nut.

Remove threaded bushing (B) from steering column extension (C) using special tool 19.58-90.631 (A).

Screw out steering column extension and second threaded bushing.

Pull out spacer bushing.



L116 053

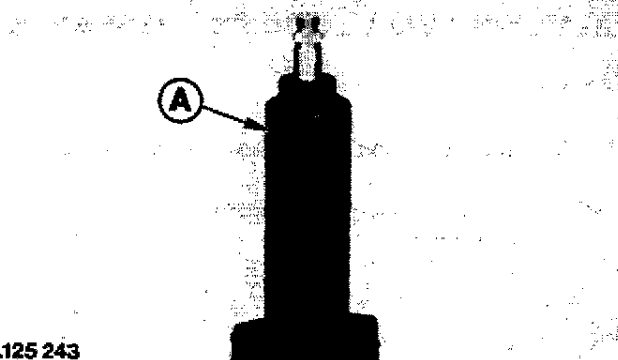
L116053-LB36015AE-010888

From Tractor Serial No. 625 277L

Screw out extension (A).

Remove threaded bushing using special tool 19.58-90.631 (see above illustration).

Pull out spacer bushing.



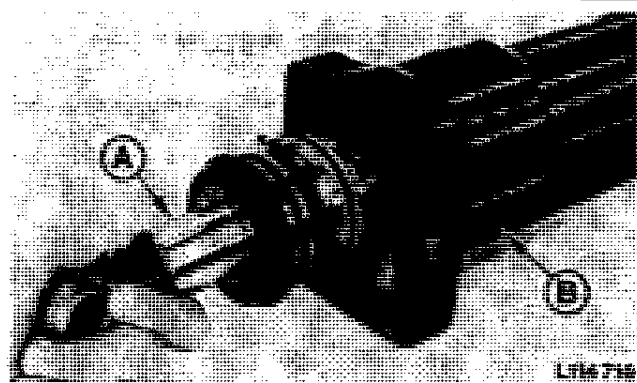
L125 243

L125243-LB36015AE-010888

REMOVING STEERING PISTON WITH STEERING PISTON ROD

Rotate steering wheel shaft counterclockwise until the steering piston rod is completely free of the steering housing.

Pull complete steering piston rod (A) from steering housing (B).

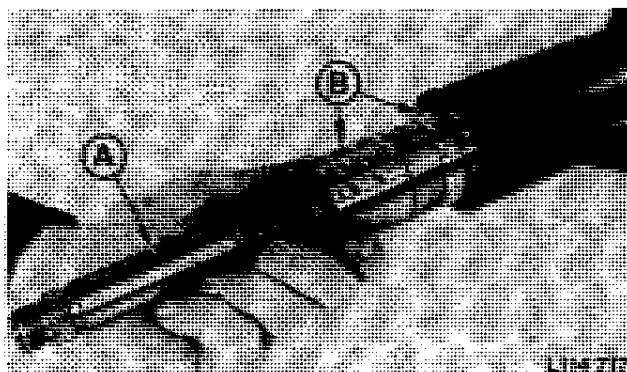


L114 716

L114716-LB36015AE-010287

REMOVING STEERING COLUMN SHAFT

Remove steering column shaft (A) with valve housing assemblies (B).



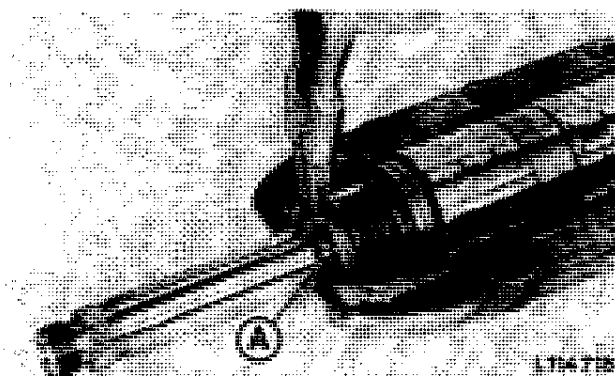
L114717-LB36015AE-010287

REMOVING UPPER SNAP RING

Compress steering column shaft spring using a puller.

Remove snap ring (A).

Release spring and remove special washer, spring and washer.



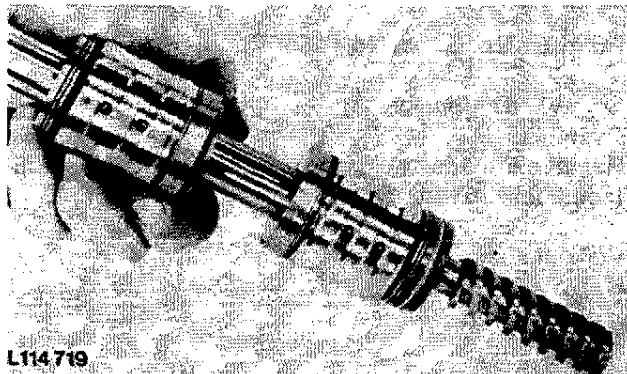
L114718-LB36015AE-010287

REMOVING VALVE HOUSING ASSEMBLIES

Remove center snap ring.

Push all valve housing parts from steering wheel shaft.

NOTE: Do not mix up parts of steering valve housing assemblies.



L114719

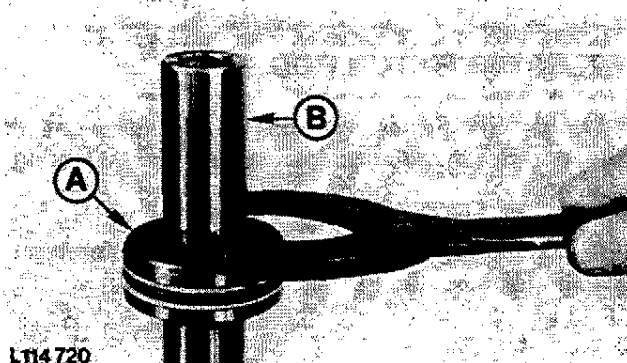
L114719-LB36015AE-010287

REMOVING STEERING PISTON

Unscrew steering piston (A) from steering piston rod (B) using a pronged wrench.

Press out pin of connecting rod and remove rod.

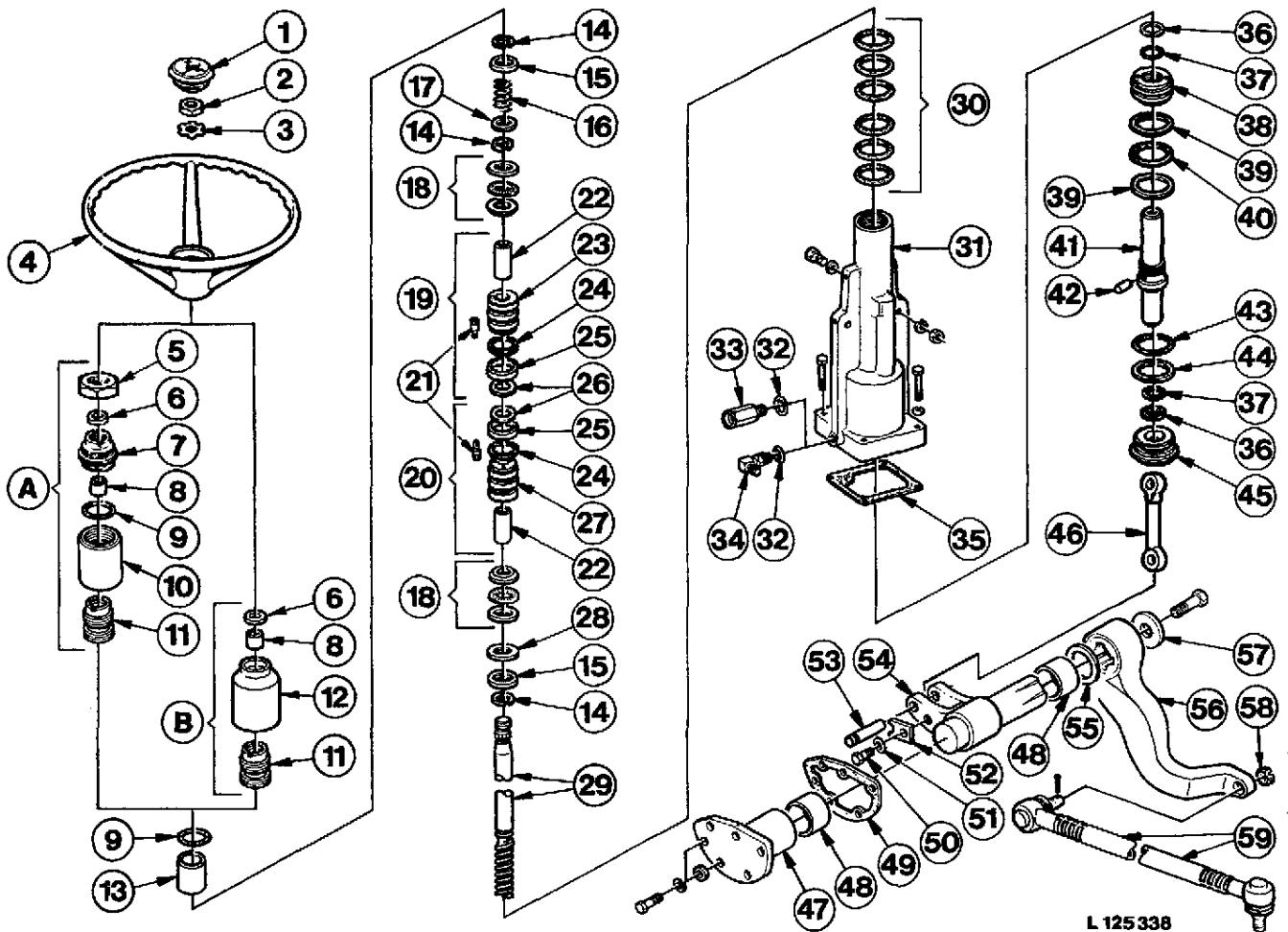
Replace O-rings and back-up rings.



L114720

L114720-LB36015AE-010888

POWER STEERING, EXPLODED VIEW



L 125 338

A—Up to Tractor Serial No.
625 276L
B—From Tractor Serial No.
625 277L
1—Steering wheel emblem
2—Hex. nut
3—Special lock washer
4—Steering wheel
5—Hex. nut
6—Oil seal
7—Threaded bushing
8—Bushings
9—O-ring
10—Steering column extension
11—Threaded bushing
12—Steering column extension

13—Spacer bushing
14—Snap ring
15—Special washer
16—Spring
17—Washer
18—Thrust bearing (complete)
19—Upper valve housing assembly
20—Lower valve housing assembly
21—Valve sleeve
22—Operating sleeve
23—Upper valve housing
24—Shims
25—Spacer bushing
26—Special washer
27—Lower valve housing
28—Shims

29—Steering column shaft
30—O-rings
31—Steering housing
32—O-ring
33—Check valve (when equipped)
34—Elbow
35—Gasket
36—Back-up ring
37—O-ring
38—Steering piston
39—Back-up ring
40—O-ring
41—Steering piston rod
42—Pin
43—O-ring

44—Back-up ring
45—Steering piston rod guide
46—Connecting rod
47—Steering shaft cover
48—Bushings
49—Gasket
50—Cap screw
51—Toothed washer
52—Retainer plate
53—Steering shaft pin
54—Steering shaft
55—Oil seal
56—Steering arm
57—Special washer
58—Slotted nut
59—Drag link

L125338-LB36015AE-010888

ADJUSTING VALVE HOUSING ASSEMBLIES

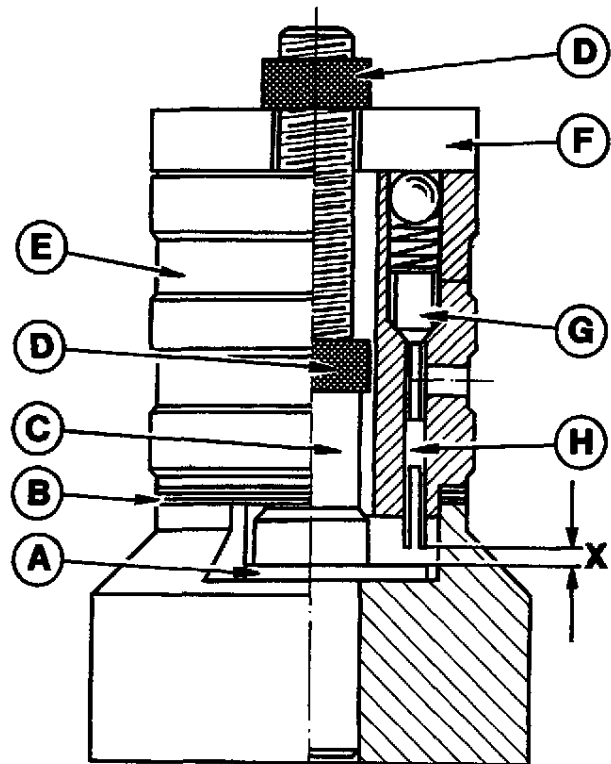
NOTE: If parts of valve housing assemblies are mixed up during removal or if parts are replaced, the assemblies must be readjusted.

Clamping Valve Housing Assembly

Clamp special washer (A) in special tool KCE10001. Position valve housing assembly (E) on special tool using a number of shims (B), then clamp firmly.

- | | |
|--------------------------|------------------|
| A—Special washer | F—Plate* |
| B—Shims | G—Steering valve |
| C—Sleeve* | H—Valve sleeve |
| D—Knurled nut* | X—Clearance |
| E—Valve housing assembly | |

* Part of special tool KCE10001



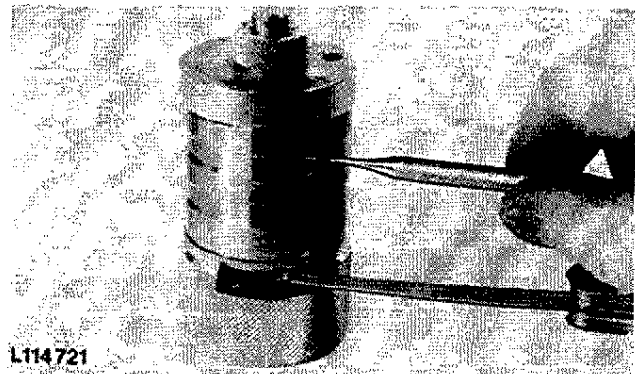
L113899

L113899-LB36015AE-010287

Measuring Clearance between Valve Sleeve and Special Washer

Press steering valve against its seat and measure clearance with a feeler gauge.

Adjust clearance to between 0.03 and 0.07 mm (0.0012 to 0.0027 in.) using shims.



L114721

L114721-LB36015AE-010287

Compensating Difference between Special Tool and Spacer Bushing

Record dimension (see arrow) engraved on special tool KCE10001.

Measure height of spacer bushing.

Calculate the difference between the two dimensions and add or remove shims until the two dimensions are equal.



L114722

L114722-LB36015AE-010287

Example

The following example illustrates how to calculate the number of shims to be added or removed:

Height of spacer bushing	8.72 mm (0.343 in.)
Dimension engraved on special tool	8.62 mm (0.339 in.)
	0.10 mm (0.004 in.)

In this example, 4 shims of 0.025 mm (0.001 in.) thickness must be removed.

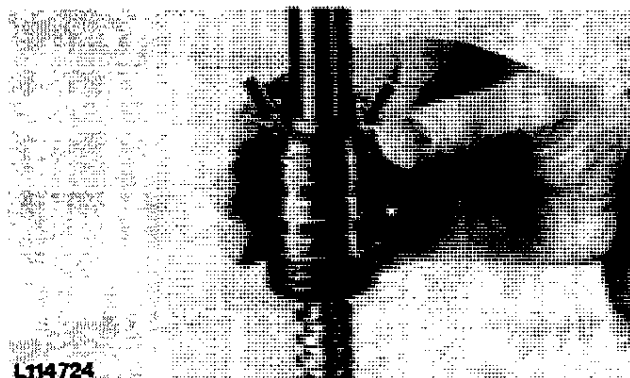
NOTE: If height of spacer bushing is greater than the dimension engraved on the special tool, the calculated thickness of shims must be added.

POWST-LB36015EE-010287

INSTALLING VALVE HOUSING ASSEMBLIES

Push the thrust bearing with thrust washers and valve housing assemblies onto the steering wheel shaft with bevelled side of thrust washers facing towards valve housing assemblies.

NOTE Do not mix up valve housing assemblies! The lower valve housing assembly has two additional oil return passages (see arrows).

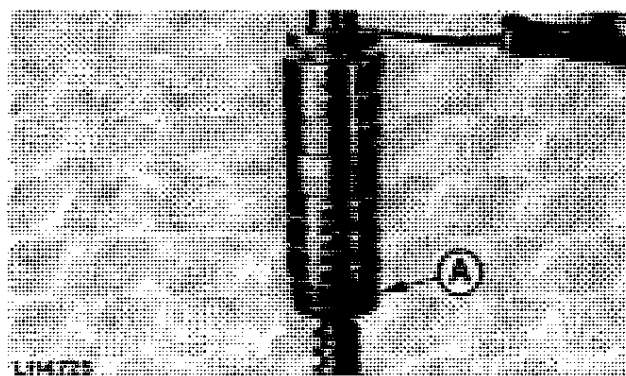


L114724-LB36015AE-010287

MEASURING CLEARANCE BETWEEN SNAP RING AND THRUST WASHER

The clearance must not exceed 0.1 mm (0.004 in.).

Correct clearance by means of shims (A) between lower special washer and thrust washer.

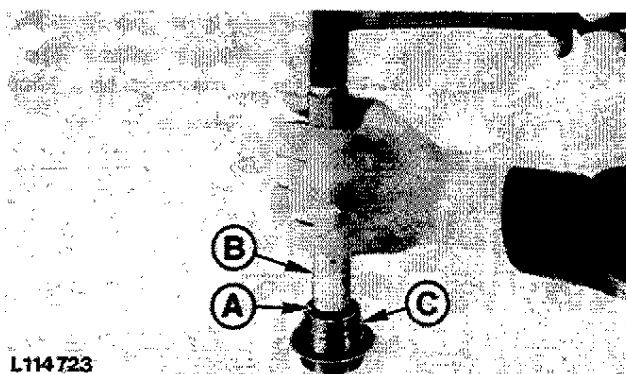


L114725-LB36015AE-000287

REPLACING SEAL RINGS OF THREADED BUSHING OR STEERING COLUMN EXTENSION

Drive oil seal (A) into threaded bushing (C) or steering column extension using driver JDG537 (B).

NOTE: Sealing lip of oil seal must face inwards.



L114723-LB36015AE-010888

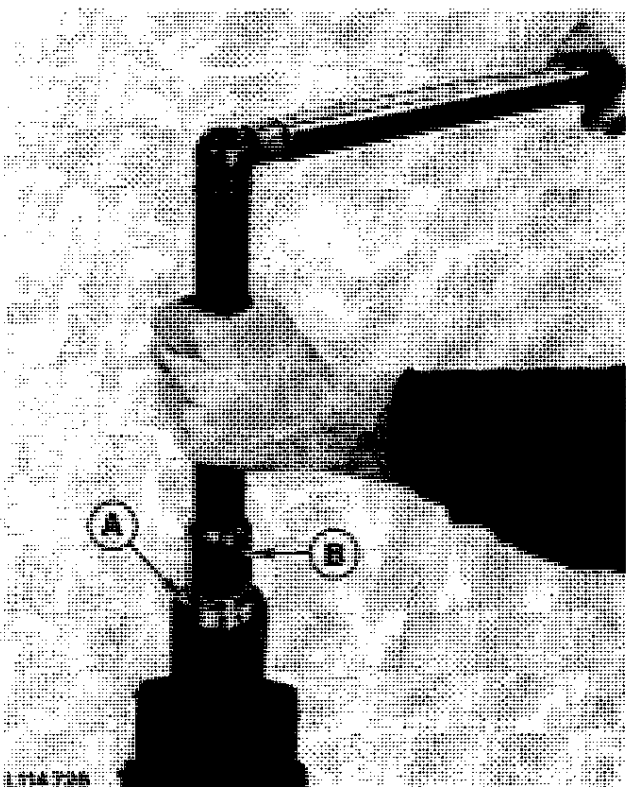
INSTALLING STEERING COLUMN SHAFT AND STEERING PISTON ROD

Replace O-rings in steering housing.

Install steering column shaft and steering piston rod with guide, thereby screwing steering column shaft into steering piston,

Install spacer bushing.

Tighten threaded bushing (A) to 100 Nm (75 ft-lb) using special tool 19.58-90.631 (B).



L114726-LB36015AE-010688

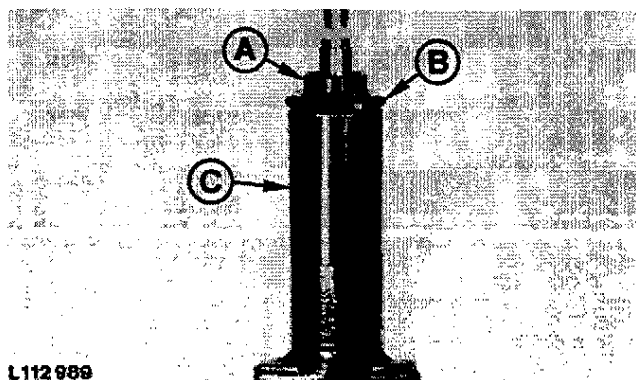
INSTALLING STEERING COLUMN EXTENSION

Up To Tractor Serial No. 625 276L

Screw steering column extension (C) onto the threaded bushing and tighten.

Screw upper threaded bushing (A) into steering column extension and tighten to 100 Nm (75 ft-lb) using special tool 19.58-90.631.

Tighten hex. nut (B) to 40 Nm (30 ft-lb).

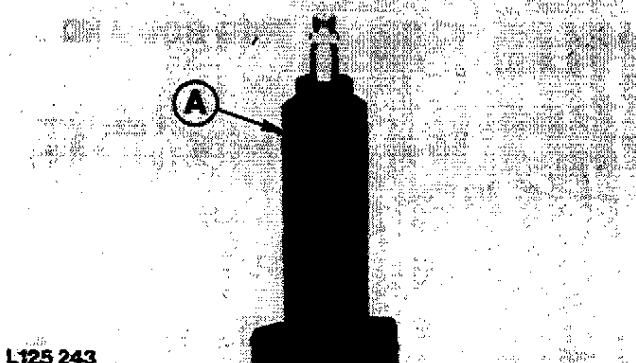


L112 989

L112989-LB36015AE-010888

From Tractor Serial No. 625 277L

Screw steering column extension (A) onto the threaded bushing and tighten.

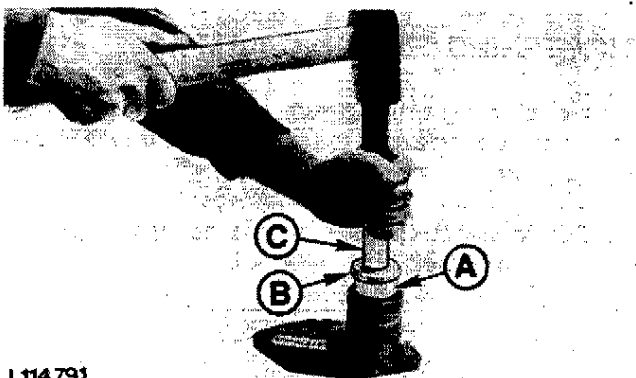


L125 243

L125243-LB36015BE-010888

DRIVING BUSHING INTO STEERING SHAFT COVER

Drive bushing (A) into steering shaft cover using special tools JD-252 (B) and JDG537 (C).



L114 791

L114791-LB36015AE-010888

DRIVING BUSHING AND OIL SEAL INTO CLUTCH HOUSING

Drive bushing and oil seal (A) into clutch housing using special tools JD-252 (B) and JDG537 (C).

NOTE: Sealing lip of oil seal must face away from special tools.



L114 792

L114792-LB36015AE-010888

INSTALLING STEERING HOUSING

Tighten cap screws (see arrows) to 50 Nm (35 ft-lb).

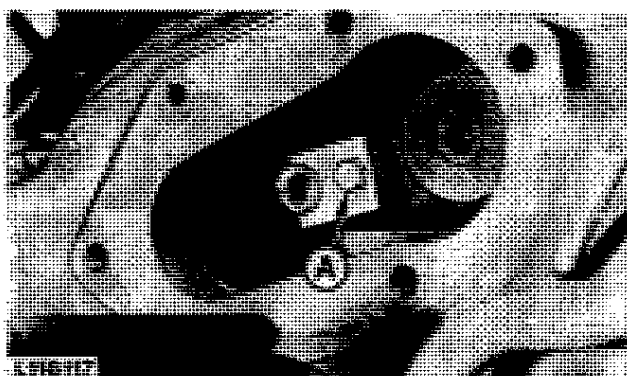
Connect hydraulic line (A).



L116115-LB36015AE-010287

ASSEMBLING CONNECTING ROD AND STEERING SHAFT

Coat cap screw (A) of steering shaft lock plate with Loctite 270 (L 41476) and tighten to 15 Nm (11 ft-lb). Install steering shaft cover.

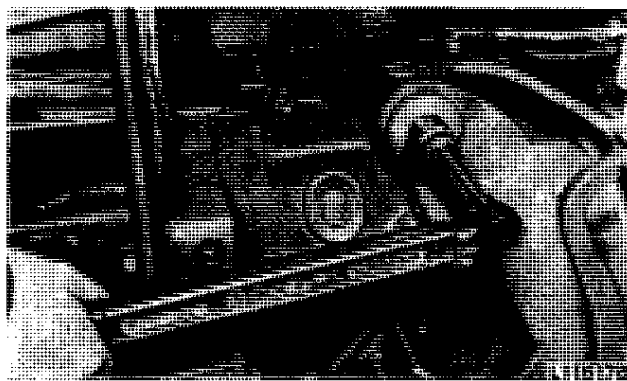


L116117-LB36015AE-010287

TIGHTENING STEERING ARM

Tighten steering arm cap screw to 325 Nm (240 ft-lb), then tap steering arm with a suitable hammer and re-tighten screw to the same torque.

NOTE: Repeat this procedure until no loss of torque is determined.



L116178-LB36015AE-000287

FINAL ASSEMBLY

Without Cab

Replace cover plate over shift cover.
Reinstall batteries.

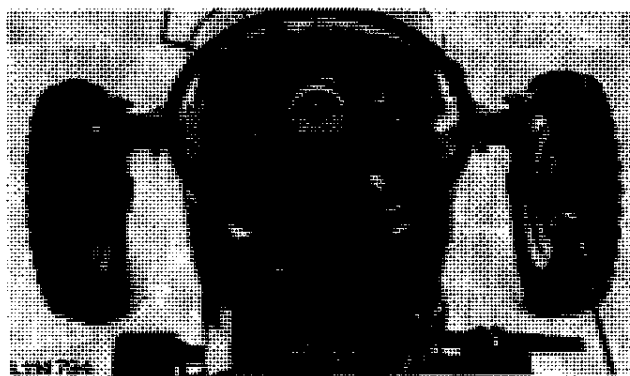
With MC1 Cab

Reinstall MC1 cab, see Section 10, Group 25.

On All Tractors

Install steering wheel so that one spoke of the steering wheel faces to the rear with tractor wheels in straight-ahead position.

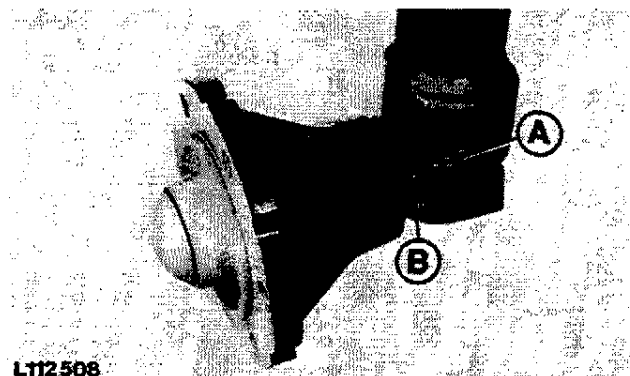
Tighten steering wheel hex. nut to 70 Nm (50 ft-lb).



L114794-LB36015AE-010287

CHECKING STEERING WHEEL TRAVEL

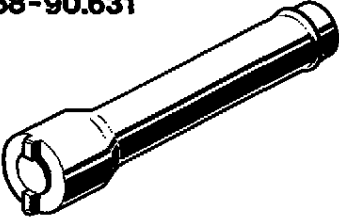
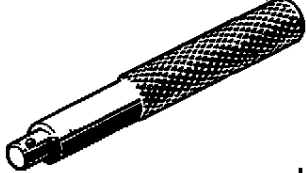
Turn steering wheel from left-hand to right-hand stop. When doing this, the stops on axle knee (A) and axle knuckle (B) of the inner wheel must not come into contact. If necessary, correct front wheel toe-in (see Section 80, Group 05).



L112508

L112508-LB36015AE-010287

SPECIAL TOOLS

19.58-90.631 	JD-252 	JDG 537 
A	B	C

L125 340

A—Adjusting bearing adjuster for barrel bearing preload

B—Driving in oil seals and bushings

C—Driving in oil seals and bushings

L125340-LB36020AE-010888

SPECIFICATIONS

Preload of barrel bearings measured with spring
balance at end of yoke 70 to 80 N (15 to 17 lb)

MANST-LB36020AE-010287

TORQUES FOR HARDWARE

Flange to ball nut and yoke, cap screws	120 Nm (90 ft-lb)
Extension in steering housing (up to Tractor Serial No. 646 890L)	100 Nm (75 ft-lb)
Hex. nut on bearing adjuster (up to Tractor Serial No. 646 890L)	100 Nm (75 ft-lb)
Extension on bearing adjuster (from Tractor Serial No. 646 891L)	100 Nm (75 ft-lb)
Steering wheel to steering wheel shaft, hex. nut	70 Nm (50 ft-lb)
Steering housing assembly to clutch housing, cap screws	50 Nm (35 ft-lb)
Lock plate to steering shaft, cap screw	15 Nm (11 ft-lb)
Steering shaft cover to clutch housing, cap screws	70 Nm (50 ft-lb)
Steering arm to steering shaft, cap screw	325 Nm (240 ft-lb)
Drag link to steering arm, slotted nuts	90 Nm (65 ft-lb)

NOTE: If cotter pin cannot be inserted into
slotted nut when tightened to specified
torque, tighten nut to next slot and se-
cure with cotter pin.

MANST-LB36020AE-010888

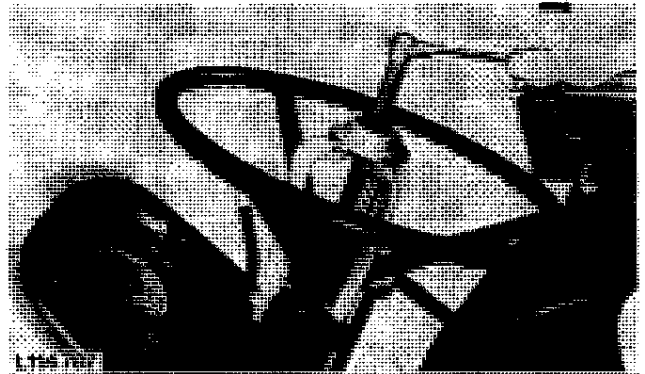
PRELIMINARY WORK

Without Cab

Use a puller to remove steering wheel.
Remove cover plate above shift cover.
Remove batteries.

With MC1 Cab

Remove MC1 cab, see Section 10, Group 25.

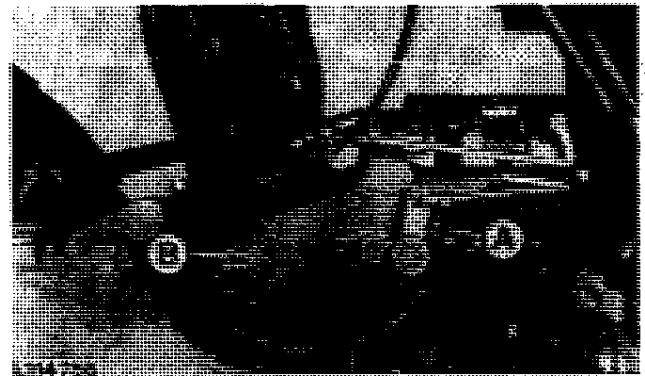


L114787-LB36020AE-010287

REMOVING STEERING SHAFT COVER

Remove speed control linkage (A) if connected to steering shaft cover (B).

Remove steering shaft cover.

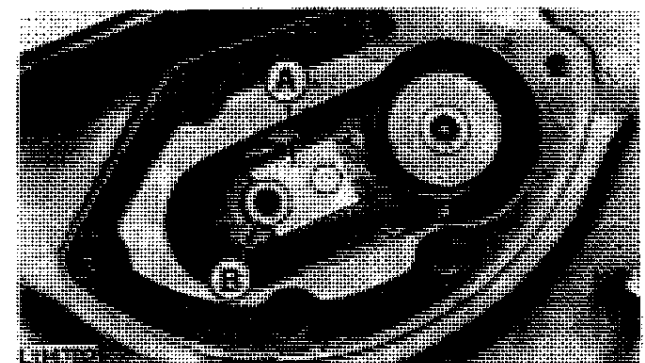


L114788-LB36020AE-010287

SEPARATING YOKE AND STEERING SHAFT

Remove lock plate (A).

Pull out pin (B).



L114789-LB36020AE-010287

REMOVING STEERING HOUSING

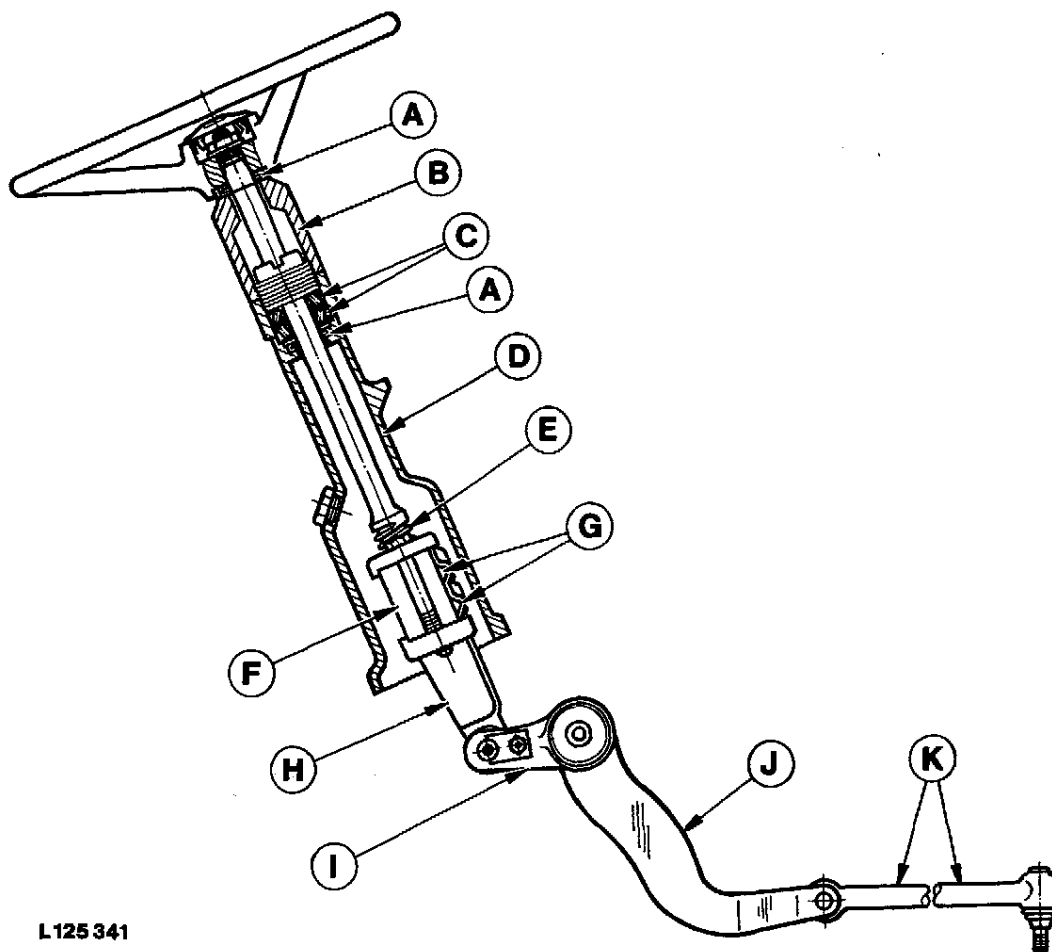
Remove cap screws (see arrows) and lift off steering housing.

Remove steering shaft and steering shaft arm.



L114790-LB36020AE-010287

MANUAL STEERING, SECTIONAL VIEW



L125 341

A-Oil seal
B-Extension
C-Barrel bearings
D-Steering housing

E-Steering wheel shaft
F-Ball nut
G-Ball guides
H-Yoke

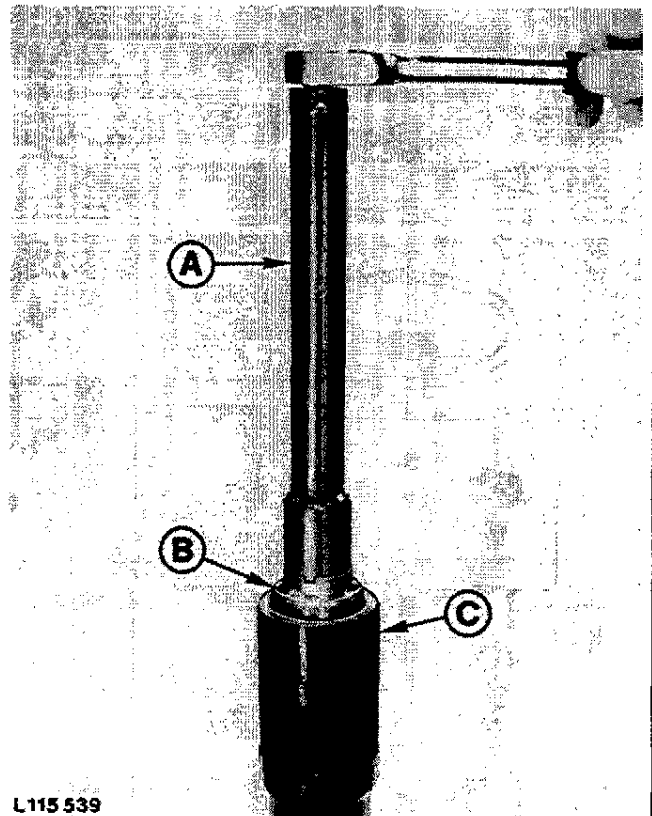
I-Steering shaft
J-Steering arm
K-Drag link

L125341-LB36020AE-010888

REMOVING BEARING ADJUSTER (Up to Tractor Serial No. 646 890L)

Remove hex. nut.

Screw bearing adjuster (B) out of steering column extension (C) using special tool 19.58-90.631 (A).



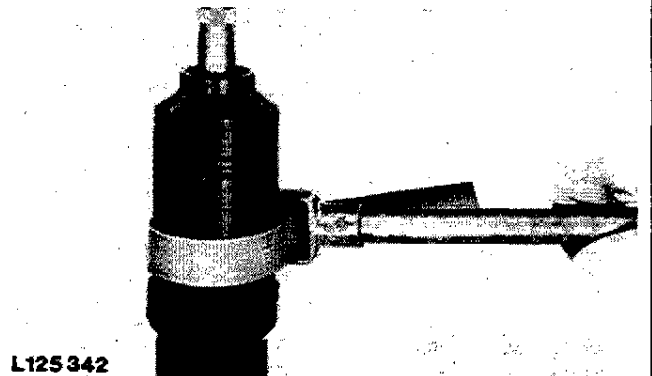
L115 539

L115539-LB36020AE-010888

REMOVING EXTENSION AND BEARING ADJUSTER (From Tractor Serial No. 646 891L)

Screw out extension.

Screw out the bearing adjuster using the special tool 19.58-90.631 (see above illustration).



L125 342

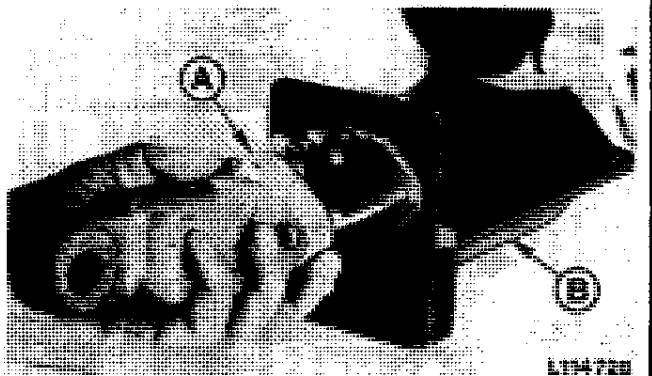
L125342-LB36020AE-010888

REMOVING STEERING WHEEL SHAFT

Pull up steering wheel shaft and remove barrel bearings, snap ring and thrust washers.

Remove complete steering wheel shaft (A) from steering housing (B).

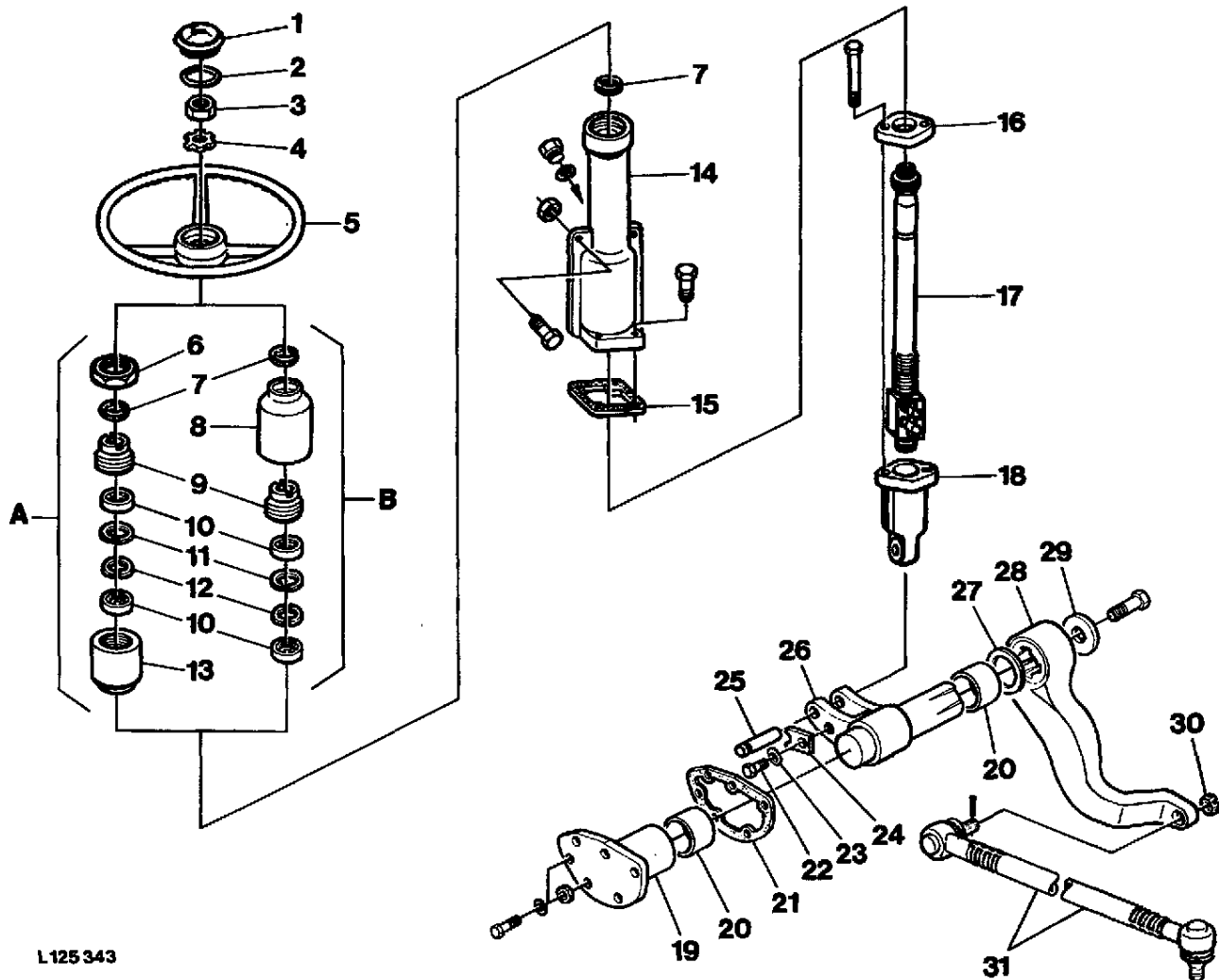
Disconnect yoke from ball nut.



L114 728

L114728-LB36020AE-010287

MANUAL STEERING, EXPLODED VIEW



L125 343

A—Up to Tractor Serial No.
646 890L

B—From Tractor Serial No.
646 891L

- 1—Steering wheel emblem
- 2—O-ring
- 3—Hex. nut
- 4—Special lock washer
- 5—Steering wheel

- 6—Hex. nut
- 7—Oil seal
- 8—Extension
- 9—Barrel bearing adjuster
- 10—Barrel bearings
- 11—Snap ring
- 12—Thrust washers
- 13—Extension
- 14—Steering housing

- 15—Gasket
- 16—Flange
- 17—Steering wheel shaft and ball nut
- 18—Yoke
- 19—Steering shaft cover
- 20—Bushing
- 21—Gasket
- 22—Cap screw

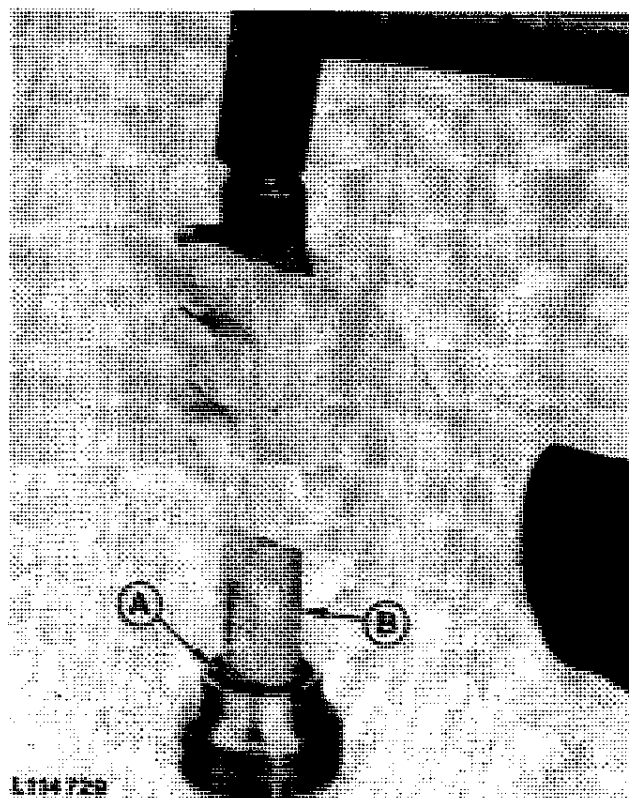
- 23—Toothed washer
- 24—Lock plate
- 25—Pin
- 26—Steering shaft
- 27—Oil seal
- 28—Steering arm
- 29—Special washer
- 30—Slotted nut
- 31—Drag link

L125343-LB38020AE-010888

INSTALLING OIL SEALS

Install oil seal (A) in bearing adjuster (up to Tractor Serial No. 646 890L) or in extension (from Tractor Serial No. 646 891L). Install oil seal in steering housing.

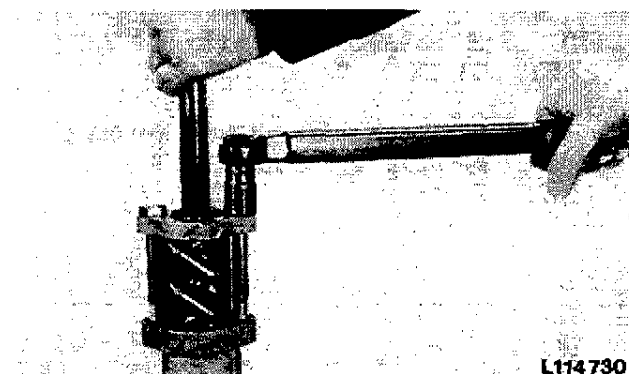
NOTE: Sealing lips of oil seals must always face toward driver JDG537 (B).



L114729-LB36020AE-010988

ATTACHING YOKE

Tighten cap screws for attaching flange to ball nut to 120 Nm (85 ft-lb).

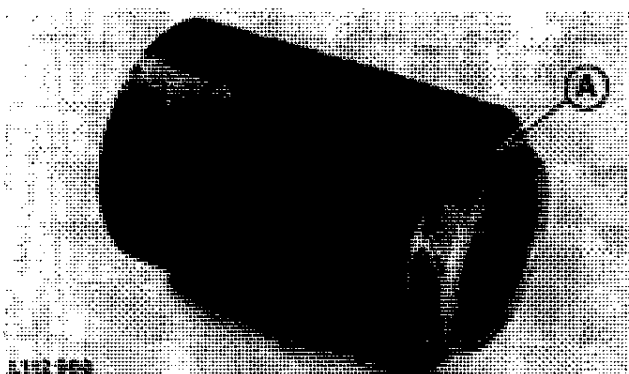


L114730-LB36020AE-010287

INSTALLING STEERING COLUMN EXTENSION

Coat thread of steering column extension (A) uniformly with Loctite No. 270 (L41476) and install extension in steering housing.

NOTE: On tractors from Serial No. 646 891L, install extension after having adjusted barrel bearings.



L112988-LB36020AE-010988

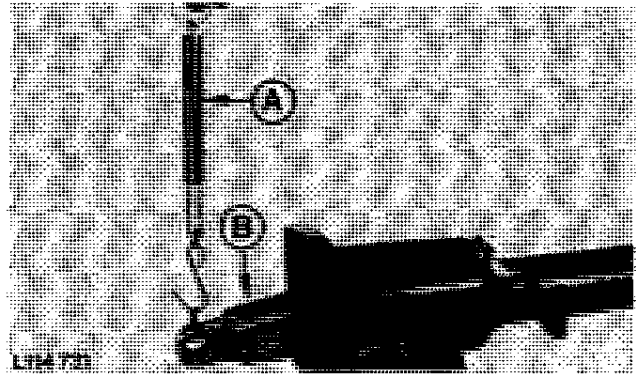
ADJUSTING BARREL BEARINGS

Pack barrel bearings with grease and install complete steering wheel shaft.

Hook spring balance (A) into yoke (B).

Tighten bearing adjuster using special tool 19.58-90.631 until a force of 70 to 80 N (15 to 17 lb) is required to move the yoke.

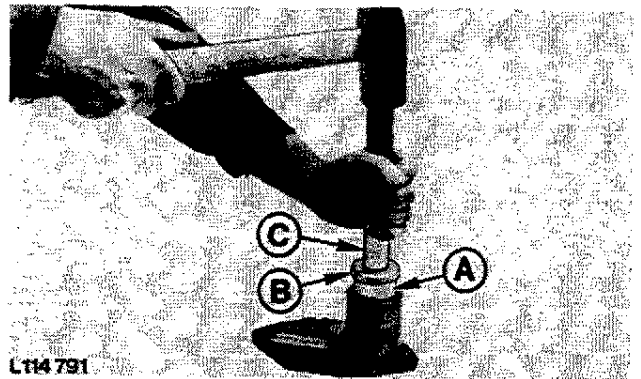
Tighten hex. nut to 100 Nm (75 ft-lb), taking care not to twist bearing adjuster during tightening.



L114731-LB36020AE-010287

DRIVING BUSHING INTO STEERING SHAFT COVER

Drive bushing (A) into steering shaft cover using special tools JD-252 (B) and JDG537 (C).



L114791-LB36020AE-010888

DRIVING BUSHING AND OIL SEAL INTO CLUTCH HOUSING

Drive bushing and oil seal (A) into clutch housing using special tools JD-252 (B) and JDG537 (C).

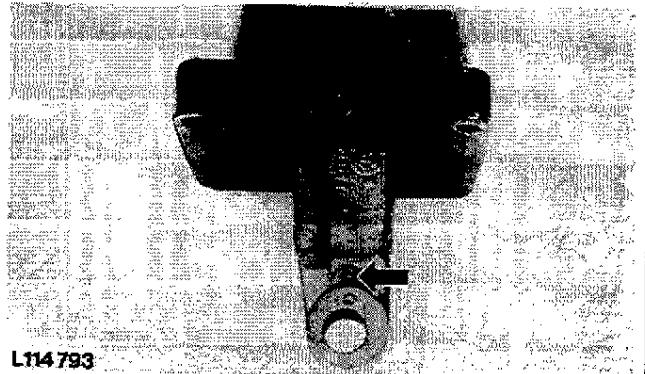
NOTE: Sealing lip of oil seal must face away from special tools.



L114792-LB36020AE-010888

INSTALLING STEERING HOUSING

The side of the yoke marked "R" (see arrow) must face to the right.

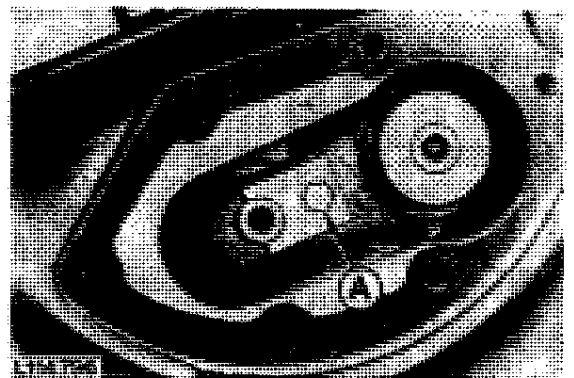


L114793

L114793-LB36020AE-010287

ASSEMBLING YOKE AND STEERING SHAFT

Coat cap screw (A) of steering shaft lock plate with Loctite 270 (L 41476) and tighten to 15 Nm (11 ft-lb). Install steering shaft cover.

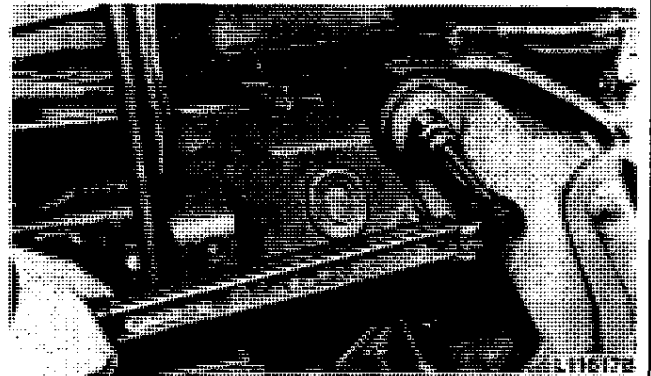


L114796-LB36020AE-010287

INSTALLING STEERING ARM

Tighten steering arm cap screw to 325 Nm (240 ft-lb), then tap the steering shaft arm with a suitable hammer and re-tighten screw to the same torque.

NOTE: Repeat this procedure until no loss of torque is determined.



L118178-LB36015AE-010287

FINAL ASSEMBLY

Without Cab

Replace cover plate over shift cover.
Reinstall batteries.

With MC1 Cab

Reinstall MC1 cab, see Section 10, Group 25.

On All Tractors

Install steering wheel so that one spoke of the steering wheel faces to the rear with tractor wheels in straight-ahead position.

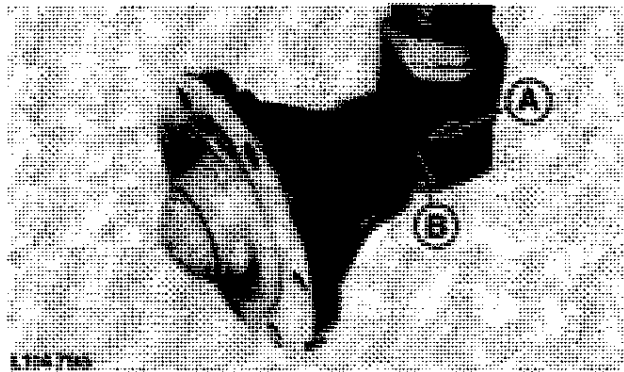
Tighten steering wheel hex. nut to 70 Nm (50 ft-lb).



L114794-LB36015AE-010287

CHECKING STEERING WHEEL TRAVEL

Turn steering wheel from left-hand to right-hand stop. When doing this, the stops on axle knee (A) and axle knuckle (B) of the inner wheel must contact. If necessary, correct front wheel toe-in (see Section 80, Group 05).



L114795-LB36020AE-000287

Group 25 HYDRAULIC BRAKES

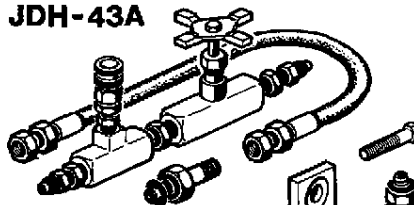
SPECIAL TOOLS

JT05472



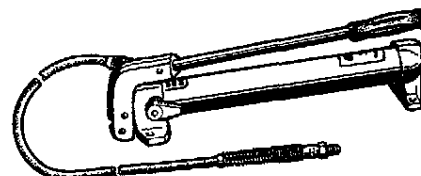
(A)

JDH-43A



(B)

D-01019AA



(C)

L 116305

A,B,C—Pressing out pressure rings and checking pressure rings for return movement and leakage

L116305-LB26015AE-010490

SPECIFICATIONS

BRAKE VALVE

Dimensions of New Parts

Wear Tolerance

Load on brake pedal during adjustment	45 N (10 lb)	
To check brake adjustment, apply for 1 minute a force of	270 N (60 lb)	
Maximum pedal settling within 1 minute at a load of 270 N (60 lb)	approx. 25 mm (1 in.)	
Inner diameter of bushings pressed into brake pedals	17.48 to 17.58 mm (0.688 to 0.692 in.)	17.91 mm (0.705 in.)
Diameter of brake pedal shaft	17.40 to 17.48 mm (0.685 to 0.688 in.)	17.30 mm (0.681 in.)

HYDBREM-LB26015AE-010488

SPECIFICATIONS (CONTD.)

Dimensions of New Parts

Wear Tolerance

BRAKE VALVE (CONTD.)

Diameter of a brake piston:

– With rear wheel brakes 22.14 to 22.18 mm
(0.872 to 0.873 in.)

– With four-wheel brakes
(u.j. drive shaft brake) 24.95 to 24.98 mm
(0.982 to 0.983 in.)

– With four-wheel brakes (electr. operated)* 19.95 to 19.98 mm
(0.785 to 0.786 in.)

Diameter of piston bearing bores in brake cylinder housing:

– With rear wheel brakes 22.20 to 22.23 mm
(0.874 to 0.875 in.)

– With four-wheel brakes
(u.j. drive shaft brake) 25.00 to 25.03 mm
(0.984 to 0.985 in.)

– With four-wheel brakes (electr. operated)* 20.00 to 20.03 mm
(0.787 to 0.789 in.)

Brake piston springs:

– Free length of spring approx. 190 mm (7.5 in.)

– Spring tension at a length
of 145 mm (5.75 in.) 90 N (20 lb)

Springs of valve balls for regulating return oil:

– Free length of spring approx. 11 mm (0.43 in.)

– Spring tension at a length
of 6 mm (0.24 in.) 0.8 to 0.9 N (2.7 to 3.3 oz)

Springs of check valves:

– Free length of spring approx. 23 mm (0.90 in.)

– Spring tension at a length
of 8 mm (0.32 in.) 0.4 to 0.6 N (1.4 to 2.0 oz)

Springs of equalizing valves:

– Free length of spring approx. 20 mm (0.80 in.)

– Spring tension at a length
of 7 mm (0.28 in.) 0.6 to 0.8 N (2.0 to 2.7 oz)

* On earlier tractors this diameter is the
same as on tractors with rear wheel brakes

HYDBREM-LB26015AE-000488

Hydraulic Brakes

	Dimensions of New Parts	Wear Tolerance
BRAKE HOUSING		
Return movement of pressure ring within 15 seconds	0.28 to 0.35 mm (0.011 to 0.014 in.)	
Test pressure for pressure ring leakage test	300 kPa (3 bar; 44 psi)	
Drop in pressure within 10 seconds, max.	10 kPa (0.1 bar; 1.5 psi)	
FOUR-WHEEL BRAKE (U.J. DRIVE SHAFT BRAKE)		
Brake lining thickness	14.85 to 15.10 mm (0.585 to 0.594 in.)	7.85 to 8.10 mm (0.309 to 0.318 in.)
Brake disk thickness	23.9 to 24.1 mm (0.940 to 0.948 in.)	22.9 mm (0.901 in.)
Max. brake disk roughness	0.1 to 0.15 mm (0.004 to 0.006 in.)	
Maximum permissible parallelism deviation of brake disk friction surfaces	0.1 mm (0.004 in.)	

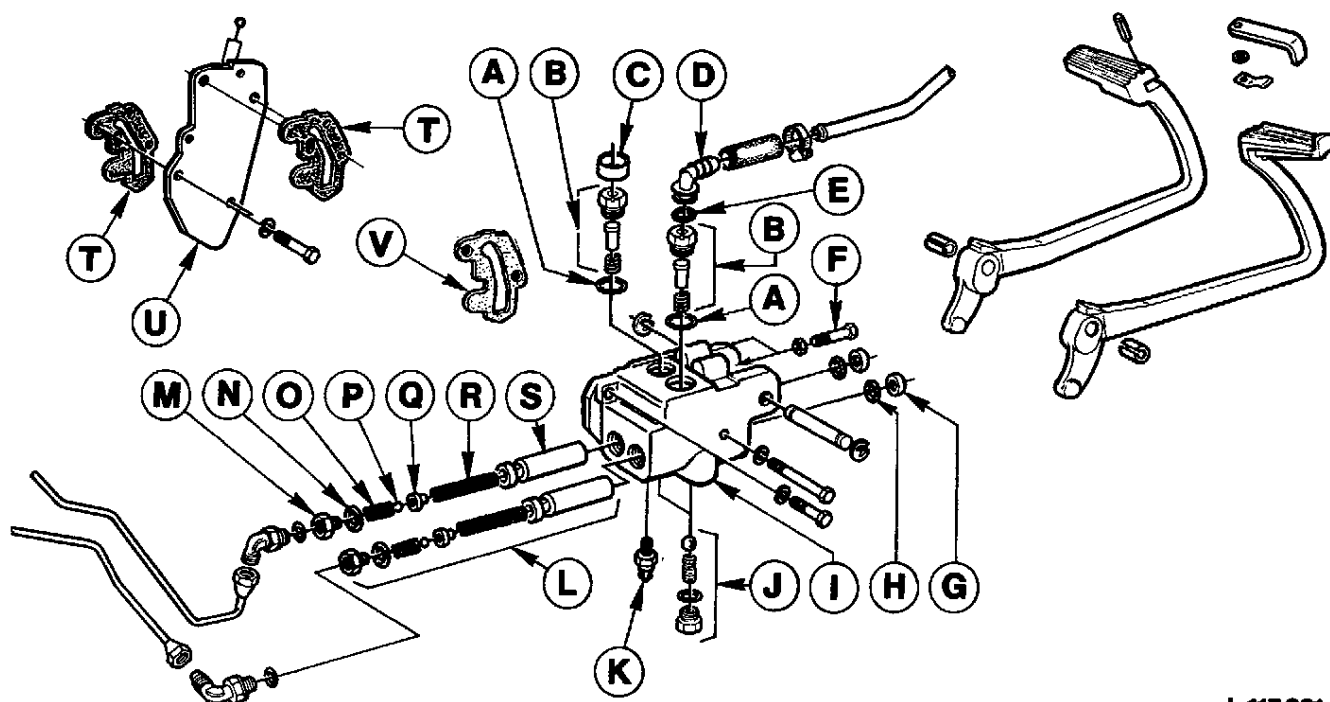
HYDBREM-LB26015CE-010488

TORQUES FOR HARDWARE

BRAKE VALVE		
Stop light switch or brake pressure switch in brake valve	30 Nm (23 ft-lb)	
Brake valve to dash support bracket, cap screws	100 Nm (70 ft-lb)	
BRAKE HOUSING		
Brake retraction pin assemblies in pressure ring	15 Nm (11 ft-lb)	
FOUR-WHEEL BRAKE (U.J. DRIVE SHAFT BRAKE)		
Brake housing to front axle, cap screws	170 Nm (125 ft-lb)	
Universal-jointed drive shaft to drive flange, cap screws	75 Nm (55 ft-lb)	

HYDBREM-LB26015DE-010488

BRAKE VALVE ASSEMBLY, EXPLODED VIEW (Tractors without Cab or with MC1 Cab)



L 117 031

A—O-ring (2 used)
B—Inlet check valve (2 used)
C—Plug
D—Hose connector fitting
E—O-ring
F—Adjusting screw (2 used)

G—Oil seal (2 used)
H—O-ring (2 used)
I—Brake valve housing
J—Pressure equalizing valve (2 used)
K—Stop light switch or brake pressure switch (2 used)*

L—Brake valve assy. (2 used)
M—Valve seat (2 used)
N—O-ring (2 used)
O—Spring (2 used)
P—Ball (2 used)
Q—Spring cap (2 used)

R—Spring (2 used)
S—Brake piston (2 used)
T—Gasket**
U—Intermediate plate**
V—Gasket***

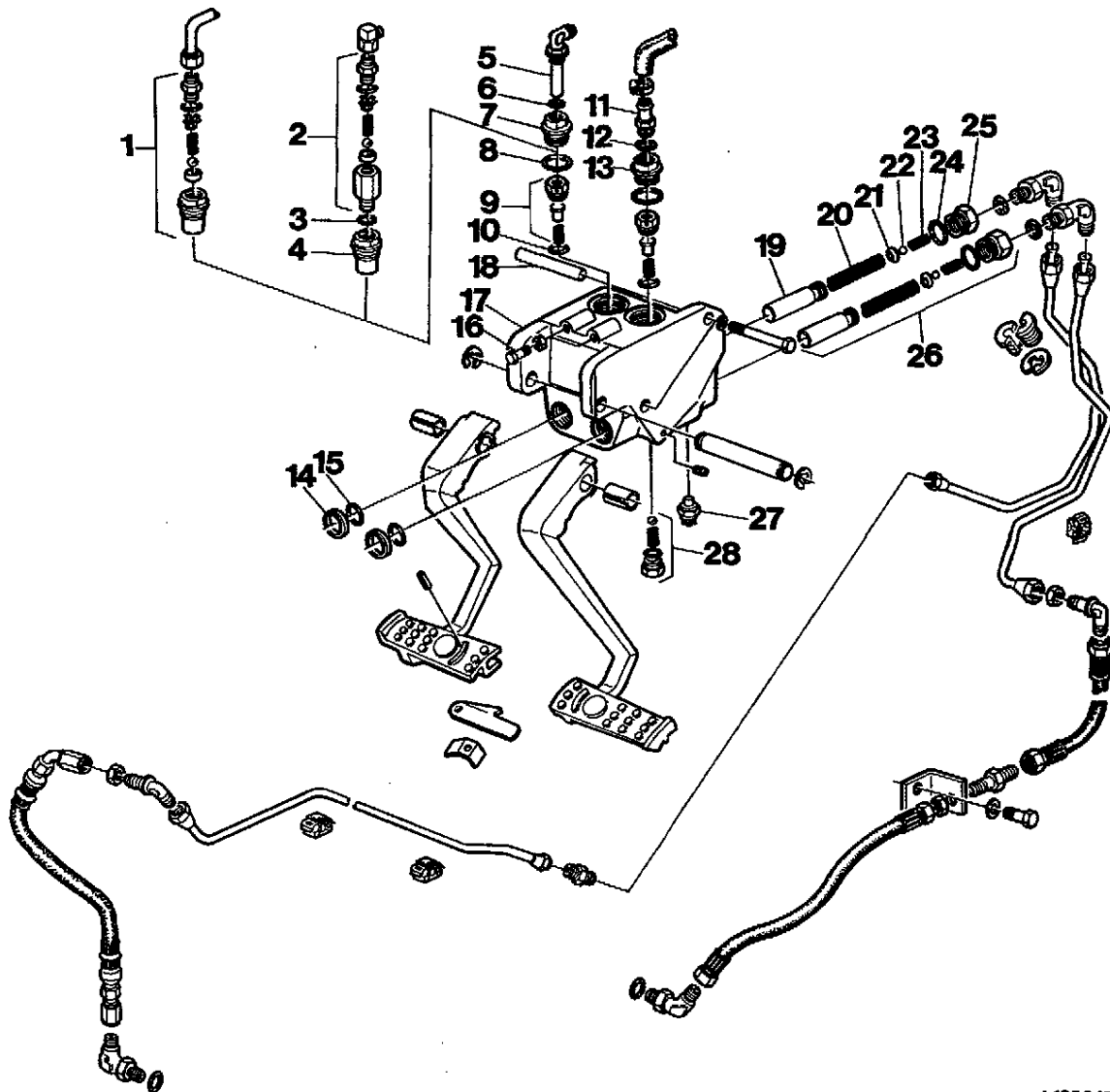
* With rear wheel brakes and four-wheel brakes (u.j. drive shaft brake) – one stop light switch
With four-wheel brakes – two brake pressure switches

** On 2850 tractors and tractors with MC1 cab

*** On 2250, 2450 and 2650 tractors without cab

L117031-LB36025AE-010888

BRAKE VALVE ASSEMBLY, EXPLODED VIEW (Tractors with SG2 Cab)



L125347

1-Check valve - orifice
(later type)*
2-Check valve - orifice
(earlier type)*
3-O-ring*
4-Connector*
5-Elbow fitting, oil inlet
6-O-ring

7-Connector
8-O-ring (2 used)
9-Inlet check valve (2 used)
10-O-ring (2 used)
11-Connector, oil return
12-O-ring
13-Connector
14-Oil seal (2 used)

15-O-ring (2 used)
16-Adjusting screw (2 used)
17-Brake valve housing
18-Spacer sleeve
19-Brake piston (2 used)
20-Spring (2 used)
21-Spring cap (2 used)
22-Ball (2 used)

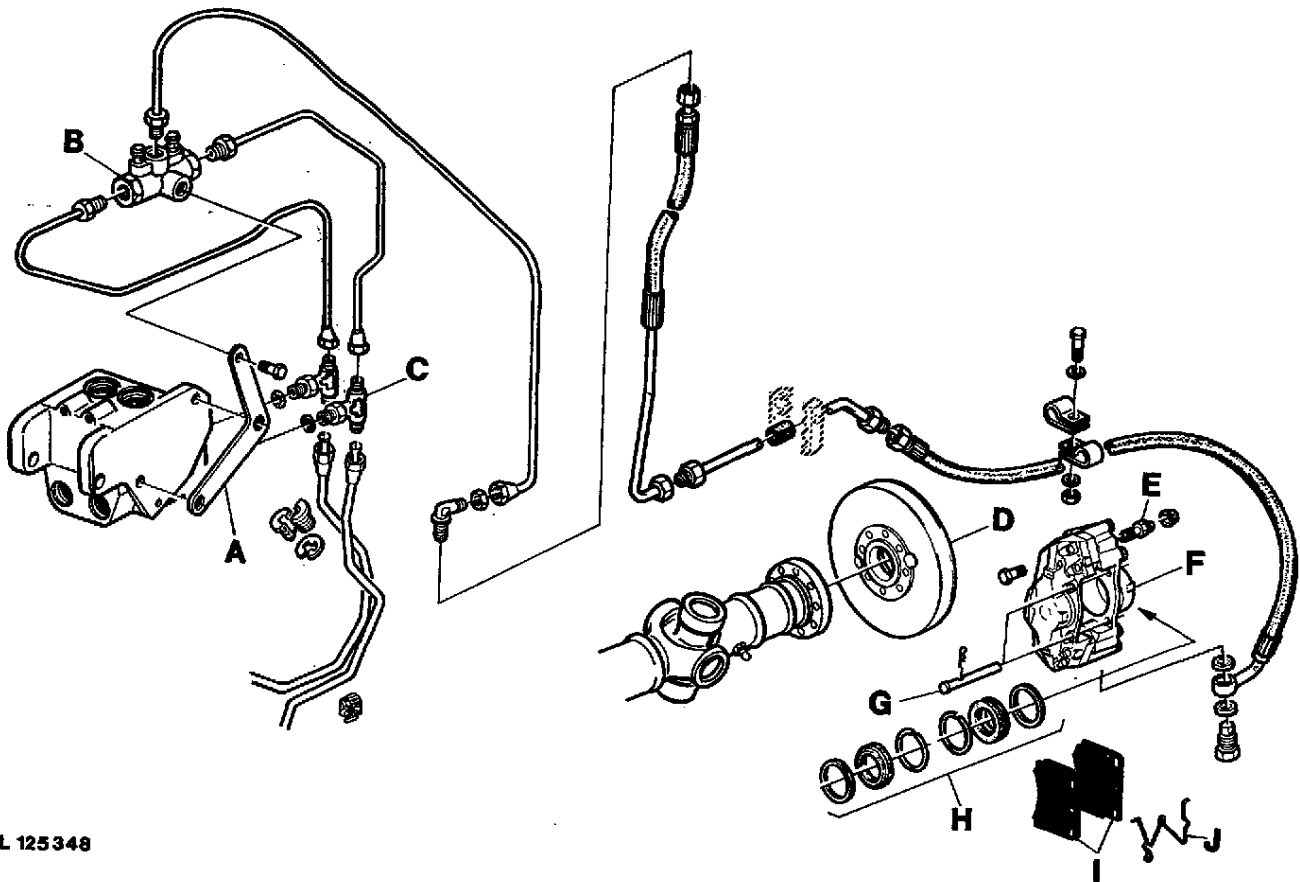
23-Spring (2 used)
24-O-ring (2 used)
25-Valve seat (2 used)
26-Brake valve assembly (2 used)
27-Stop light switch or brake
pressure switch (2 used)**
28-Pressure equalizing valve
(2 used)

* On tractors with oil return filter

** - With rear wheel brakes and four-wheel brakes
(u.j. drive shaft brake) - one stop light switch
- With four-wheel brakes - two brake pressure
switches

L125347-LB36025AE-010688

FOUR-WHEEL BRAKES (U.J. DRIVE SHAFT BRAKE), EXPLODED VIEW



L 125 348

A-Bracket
B-Sequence valve
C-T-piece (2 used)

D-Brake disk
E-Bleed screw
F-Brake housing

G-Pin (2 used)
H-Sealing kit
I-Brake linings
J-Retaining spring

L125348-LB36025AE-010888

DISASSEMBLING BRAKE VALVE ASSEMBLY

IMPORTANT: If brake valve is to be completely disassembled, then remove inlet check valves before removing brake pedals. Otherwise remove brake pedal shaft and pedals carefully so that brake piston springs are relieved slowly. Sudden expulsion of brake pistons under spring tension can cause damage to the inlet check valves.

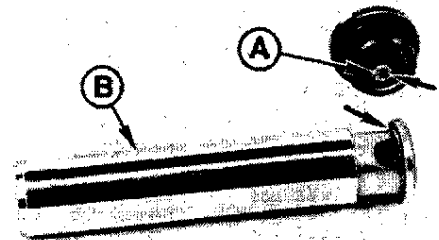


CAUTION: Nonobservance of the important notes above can lead to complete failure of the rear wheel brake.

HYDBREM-LB46015CE-010490

CHECKING BRAKE PISTON AND INLET CHECK VALVES

Check valve bodies (A) of inlet check valves and brake pistons (B) for wear or damage, particularly at the point at which valve assemblies contact brake pistons (see arrows) in normal position.



L106942

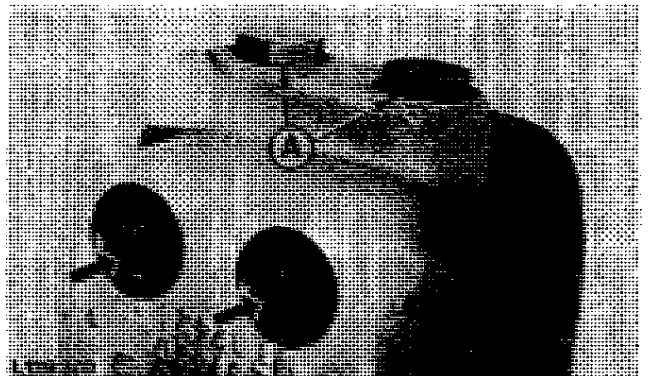
L106942-LB29015AE-010488

INSTALLING OIL SEALS AND EQUALIZING VALVES

Sealing lips of oil seals must face outwards (see arrows).

NOTE: Coat oil seals with *JOHN DEERE EP multi-purpose grease* before installing.

Install pressure equalizing valves (A).

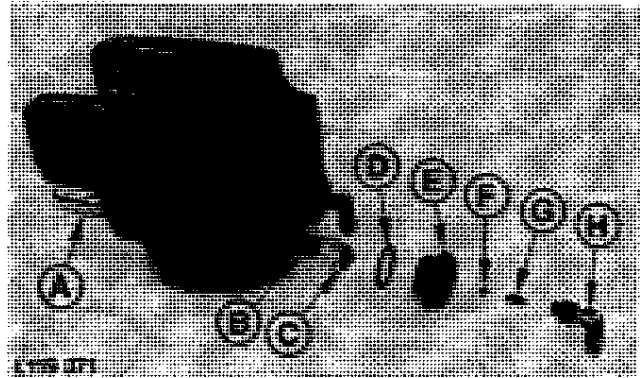


L119370-LB26015AE-010488

INSTALLING BRAKE PISTONS

NOTE: Coat brake pistons with transmission oil before installing.

- | | |
|--------------------------|--|
| A—Brake pistons (2 used) | F—Ball (2 used) |
| B—Spring (2 used) | G—Spring (2 used) |
| C—Spring cap (2 used) | H—Elbow fitting (tractors with u.j. drive shaft brake) |
| D—O-ring (2 used) | T-piece - 2 used) |
| E—Valve seat (2 used) | |

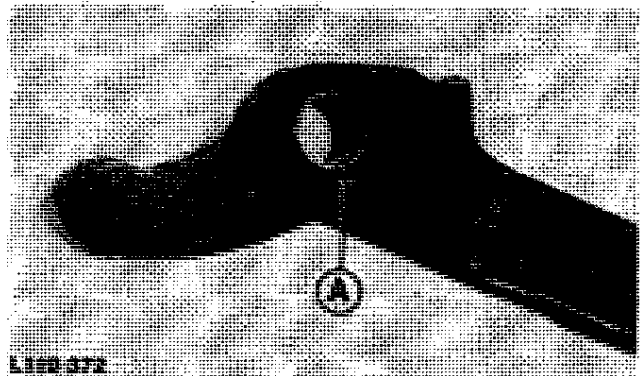


L119371-LB26015AE-010488

INSTALLING BRAKE PEDALS

Press in bushings (A) until flush with outer side of brake pedal.

NOTE: Coat bushings with Molykote grease Type "G" (L81050) before installing brake pedals.



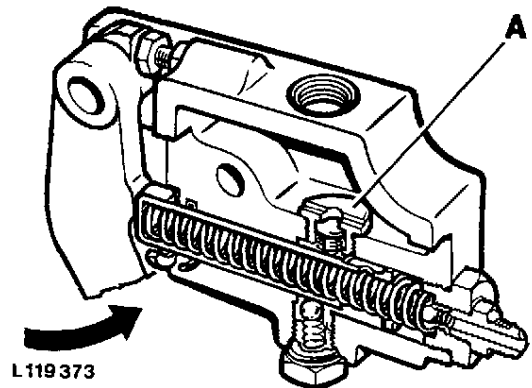
L119372-LB26015AE-010488

INSTALLING INLET CHECK VALVES

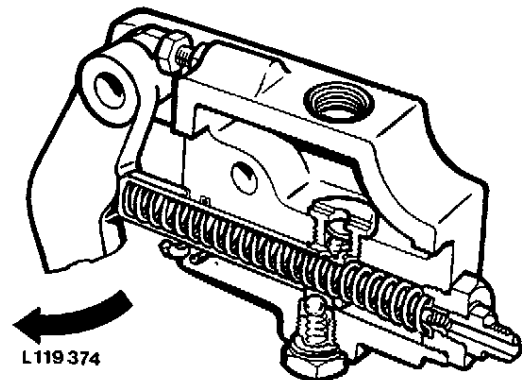
Slowly fully depress brake pedal and holding brake pedal in this position, install check valve (A).

Slowly and carefully release brake pedal until brake piston is flush against inlet check valve.

Turn out adjuster screw until brake pedal is flush against brake piston.



L119373



L119374

L119373,L119374-LB26015AE-010488

REMOVING BRAKE PEDALS

IMPORTANT: To ensure correct function of the brake valve, brake pedals must be readjusted whenever the brake valve has been disassembled.

NOTE: Before adjusting brake pedals, brake pistons must lie against inlet check valves and brake pedals must be adjusted so that they are just touching the brake pistons (no play).

Turn out adjuster screws (A) as follows:

- Tractors without cab, with MC1 cab and SG2 cab up to Tractor Serial No. 623 078L: 1/2 a turn.
- Tractors with SG2 cab from Serial No. 623 079L: 5/6 of a turn.

Should brake pedals not be level, then adjust by backing off adjuster screw of the higher brake pedal:

On tractors with SG2 cab, back off adjuster screw by a maximum of 1/6 turn;

On tractors without cab or with MC1 cab, back off the adjuster screw by a maximum of 1/3 turn.

Tighten adjuster screw lock nuts.

Fill brake cylinder with hydraulic oil and bleed brakes. When bleeding the brakes, fully depress each brake pedal at least three times. Again refill brake cylinder with hydraulic oil.

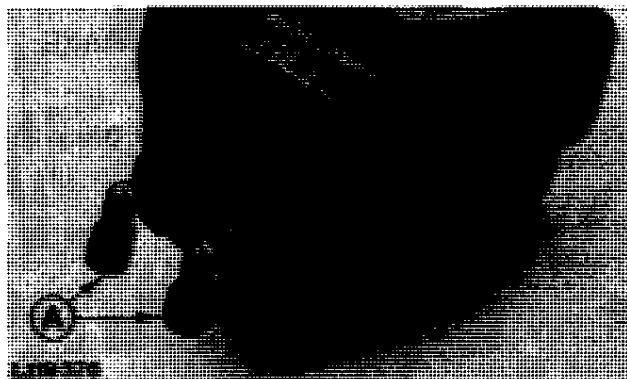


L119375-LB36025AE-010888

CHECKING BRAKE CYLINDER

Using two plugs R36926 (A), close brake cylinder that has been bled. On tractors with u.j. drive shaft brake an additional two plugs R40583 are required.

Load each brake pedal individually with a load of 45 N (10 lb). The loaded brake pedal should not sink.



L119376-LB26015AE-000488

INSTALLING BRAKE VALVE ASSEMBLY

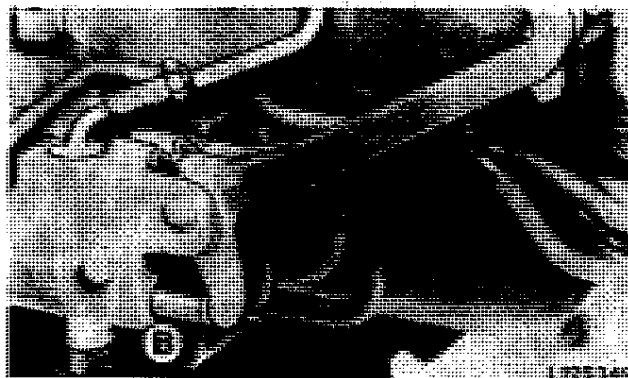
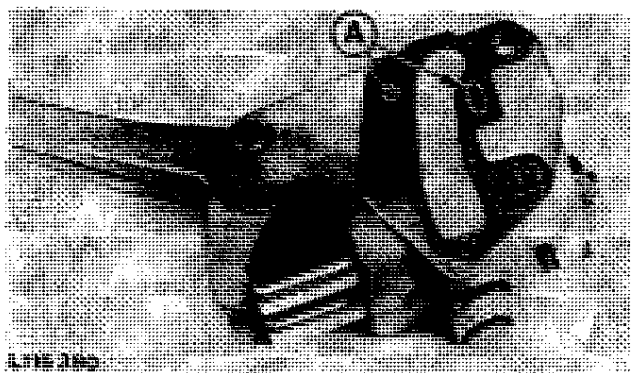
Without Cab or With MC1 Cab

Use a new gasket when installing the brake valve assembly.

NOTE: On tractors with MC1 cab and 2850 tractors, the gasket must have holes (A) as shown.

Tighten stop light switch (B) or brake pressure switch to max. 30 Nm (23 ft-lb).

NOTE: Having completed installation, bleed brakes and check system for leaks.



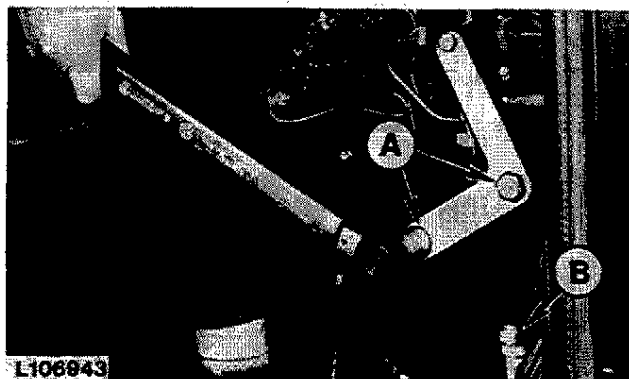
L116380, L125349-LB36025AE-010888

With SG2 Cab

Tighten cap screws (A) to 100 Nm (75 ft-lb).

Tighten stop light switch (B) or brake pressure switch to max. 30 Nm (23 ft-lb).

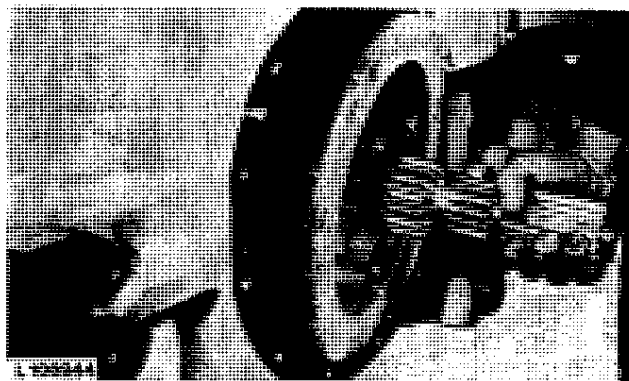
NOTE: Having completed installation, bleed brakes and check system for leaks.



L106943-LB26015AE-000488

REMOVING BRAKE RINGS AND BRAKE DISKS

For removal of final drives, see Section 10, Group 25.



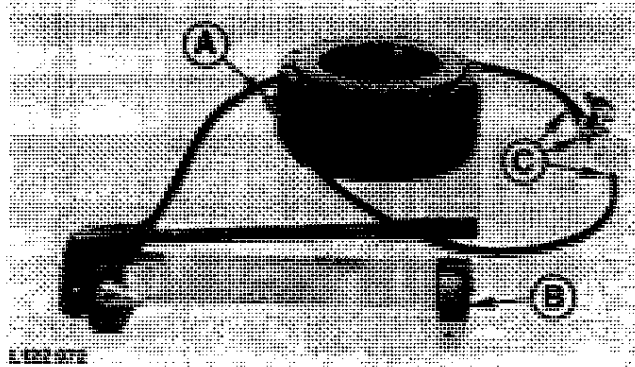
L106944-LB26015AE-000886

REMOVING PRESSURE RING

Press out pressure ring by means of the hydraulic hand-operated pump.

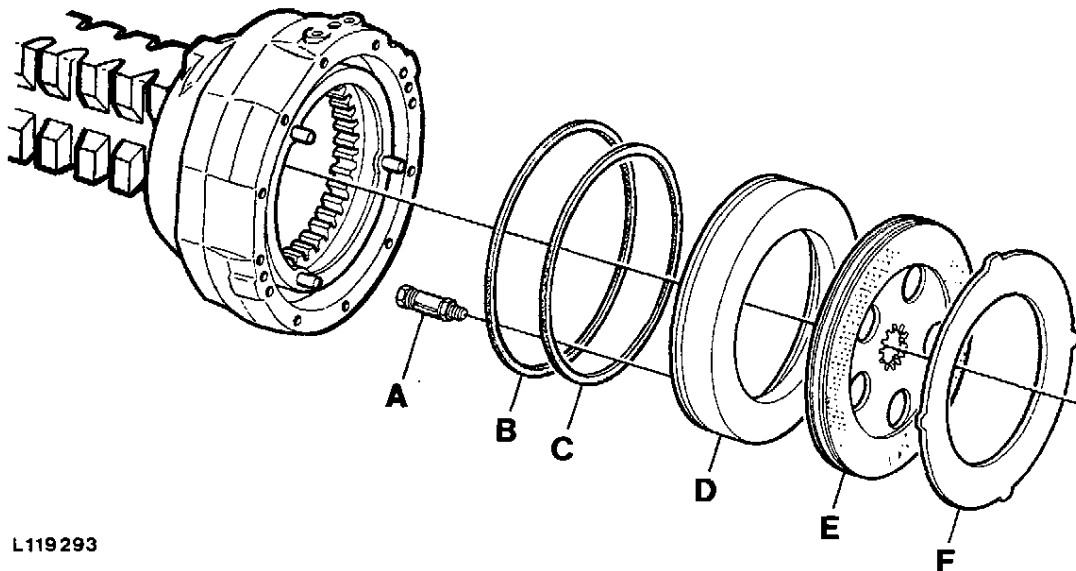
A—Elbow fitting AL60537
B—Hydr. hand-operated pump
D-01019AA

C—Relief valve test kit
JDH-43A



L122972-LB26015AE-010490

BRAKE DISK ASSEMBLY, EXPLODED VIEW



L119293

A—Retraction pin assemblies
(3 used)
B—Seal ring

C—Seal ring
D—Pressure ring

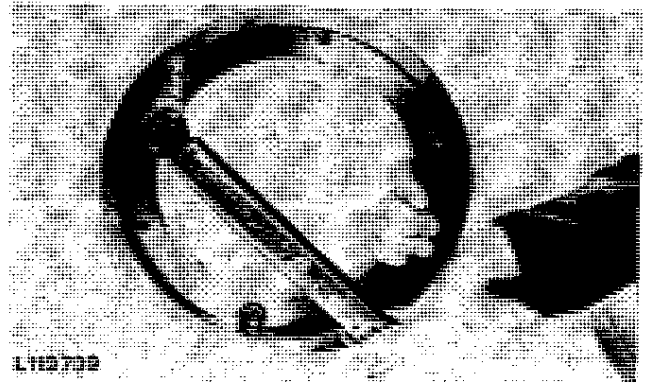
E—Brake disk
F—Brake ring

L119293-LB26015AE-010488

INSTALLING BRAKE RETRACTION PIN ASSEMBLIES

Coat threads with LOCTITE 648 (L41860).

Tighten retraction pin assemblies to 15 Nm (11 ft-lb).

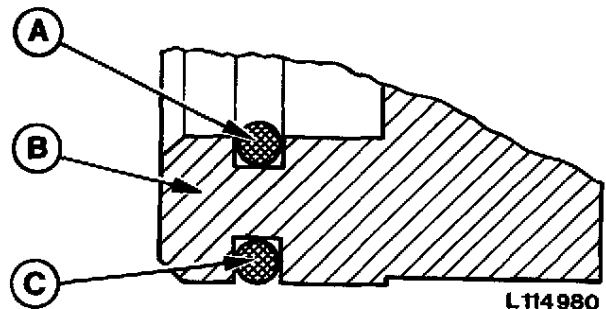


L113739-LB36025AE-010287

INSTALLING SEAL RINGS

Install seal rings (A and C) in pressure ring (B).

Coat seal rings with JOHN DEERE EP multipurpose grease or SAE EP multipurpose grease.

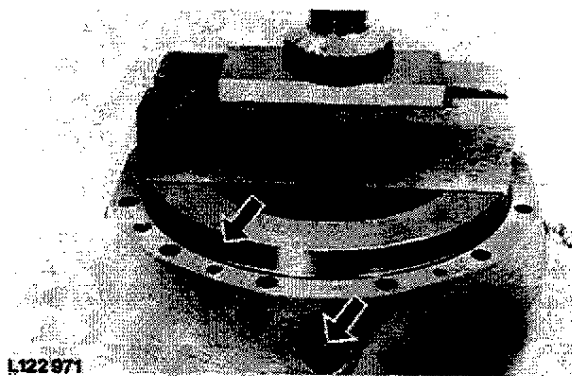


L114980-LB26015AE-010488

INSTALLING PRESSURE RING

Press in pressure ring equally up to the stop, making sure that seal rings are not damaged or twisted during installation.

IMPORTANT: On tractors from serial no. 693 412L install pressure ring with bore next to the bleed screw (see illustration).



L122971-LB36025AE-010490

CHECKING PRESSURE RING FOR LEAKAGE AND RETURN MOVEMENT

Apply a pressure of 300 kPa (3 bar; 44 psi) to pressure ring.

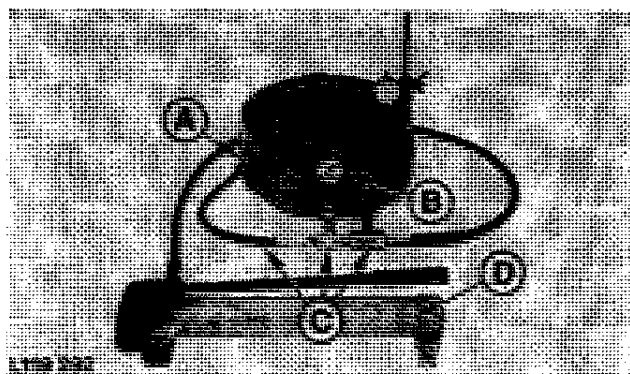
NOTE: Drop in pressure must not exceed a maximum of 10 kPa (0.1 bar; 1.5 psi) within a period of ten seconds.

When the pressure is relieved, measure return travel of pressure ring at three points (approx. 120° apart).

NOTE: Return movement of pressure ring should be at least 0.28 mm (0.011 in.) within 15 seconds.
Return travel of ring must not exceed 0.35 mm (0.014 in.).

A—Elbow fitting AL60537
B—Gauge JT05472

C—Relief valve test kit JDH-43A
D—Hydraulic hand-operated pump D-01019AA



L119292-LB26015AE-000488

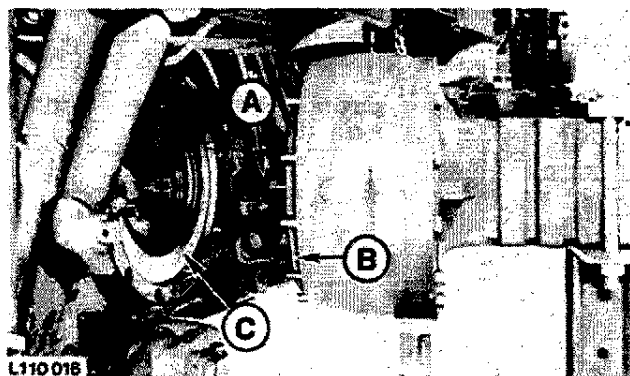
INSTALLING BRAKE DISK

Install brake ring (C) with chamfered side on brake cams or side with rough surface or unmachined surface (depending on brake ring type) facing transmission case.

IMPORTANT: Before installing final drive assembly, make absolutely sure that pressure ring is seated evenly against stop in brake housing.

Install drive shaft (A) with brake disk (B) in final drive.

Install final drives as described in Section 10, Group 25.



L110018-LB26015AE-010490

CHECKING U.J. DRIVE SHAFT BRAKE LININGS

Brake linings must be smooth, level and free from grease and oil. Replace brake linings if necessary.

Thickness (plate and lining): 14.85 to 15.10 mm (0.585 to 0.594 in.)

Wear limit: 7.85 to 8.10 mm (0.309 to 0.318 in.)



L106946-LA76010AE-121184

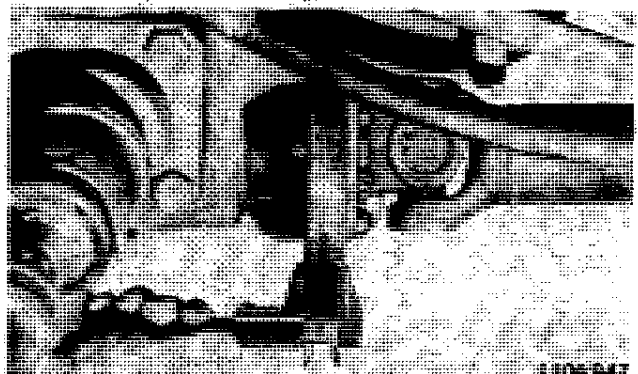
CHECKING U.J. DRIVE SHAFT BRAKE DISK

Thickness: 23.9 to 24.1 mm (0.940 to 0.948 in.)

Wear limit: 22.9 mm (0.901 in.)

Max. surface roughness: 0.1 to 0.15 mm (0.004 to 0.006 in.)

Maximum permissible parallelism deviation of both friction faces: 0.1 mm (0.004 in.)

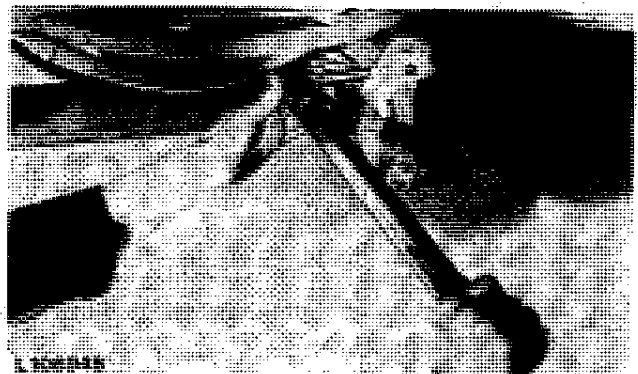


L106947-LA76010AE-121184

INSTALLING U.J. DRIVE SHAFT BRAKE

Tighten cap screws securing brake housing to front axle to 170 Nm (125 ft-lb).

Tighten u.j. drive shaft cap screws to 75 Nm (55 ft-lb).



L106948-LA76010AE-121184

BLEEDING REAR WHEEL BRAKES

Run engine at 2100 rpm for approx. 2 minutes to fill brake valve assembly reservoir with oil. In addition, on tractors equipped with SG2 cab, turn steering wheel to the left and right.

NOTE: On tractors with trailer brake, bleed trailer brake valve first (see Group 35).

Slowly depress brake pedal on brake being bled and then allow it to return slowly until oil in hose is free from air bubbles.

Close bleed screw with brake pedal depressed.

IMPORTANT: After having bled the brakes, individually depress each brake pedal sharply to make sure that corresponding pressure ring is in its end position. Bleed brakes again. After having bled the sequence valve and universal-jointed drive shaft brake (when equipped), check brakes for function and leakage.



L114613-LB36025AE-010888

BLEEDING SEQUENCE VALVE

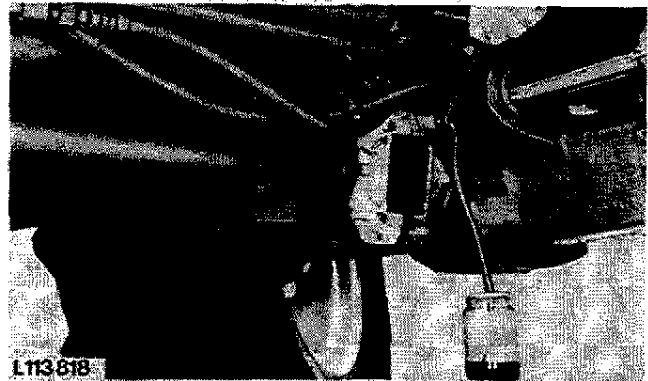
Slowly depress brake pedal on brake being bled and then allow it to return slowly until oil in hose is free from air bubbles.



L106950-LA76010AE-121184

BLEEDING U.J. DRIVE SHAFT BRAKE

Slowly depress both brake pedals simultaneously and then allow them to return slowly until oil in hose is free from air bubbles.

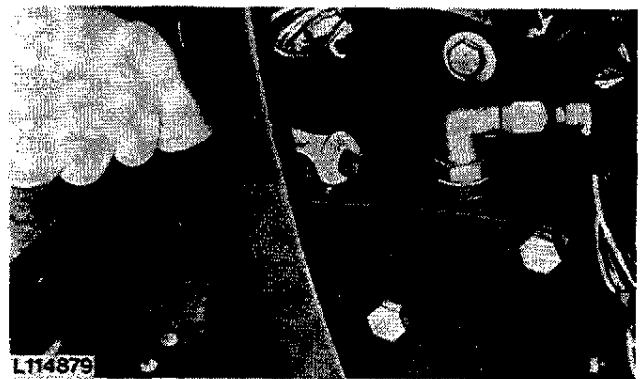


L113818-LB26015AE-010886

CHECKING BRAKE SYSTEM FOR LEAKAGE

Apply a force of 270 N (60 lb) to each brake pedal individually for one minute. Within this period the loaded brake pedal should not sink more than a maximum of 25 mm (1 in.).

NOTE: Should a fault occur, then refer to Technical Manual "Operation and Tests", Section 260.



L114879-LB26015AE-000488

SPECIFICATIONS

Handbrake lever adjustment (in third or fourth notch of quadrant) 110 N (25 lb)

HANDBR-LB26020AE-000488

PRELIMINARY WORK

Drain transmission oil.

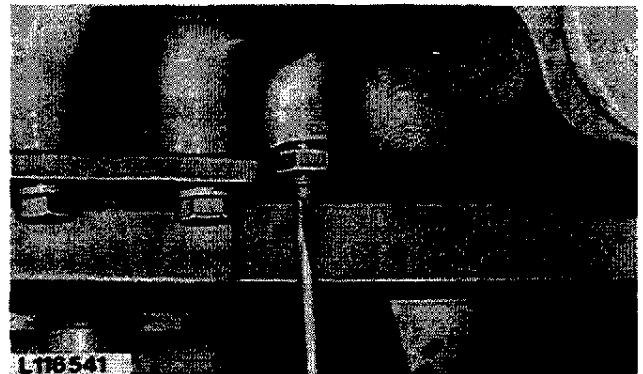
Remove lever or handbrake lever from shaft.

Remove left-hand final drive assembly and rockshaft (see Section 10, Group 25).

HANDBR-LB36030BE-010287

REMOVING BRAKE BAND SUPPORT SCREW

Turn brake band support screw out of transmission case.



L116541-LB36030AE-010287

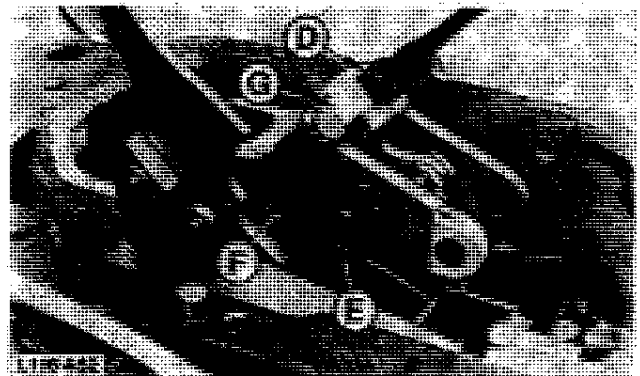
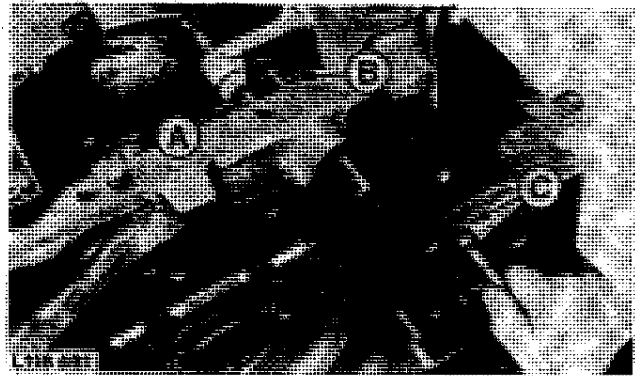
REMOVING BRAKE SHAFT AND ANCHOR

Using a 3/8 in. - 16 UNC cap screw, remove upper and lower anchor pins (A and C).

Remove brake shaft (B).

Unscrew brake band adjusting screw (D) and remove pin (E). Remove anchor (F) and brake band arm (G).

- A—Upper anchor pin
- B—Brake shaft
- C—Lower anchor pin
- D—Brake band adjusting screw
- E—Pin
- F—Anchor
- G—Brake band arm



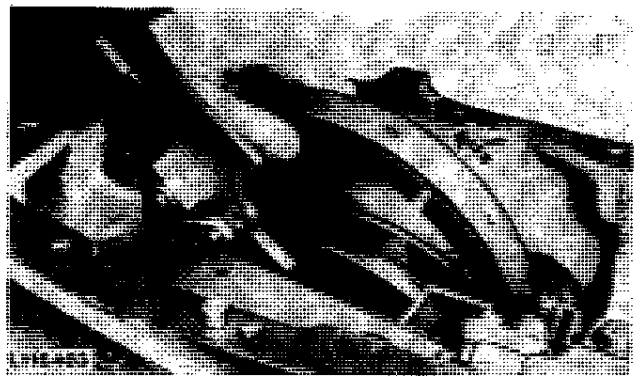
L116461, L116462-LB36030AE-010267

REMOVING BRAKE BAND

Turn brake band and unhook spring (see arrow).

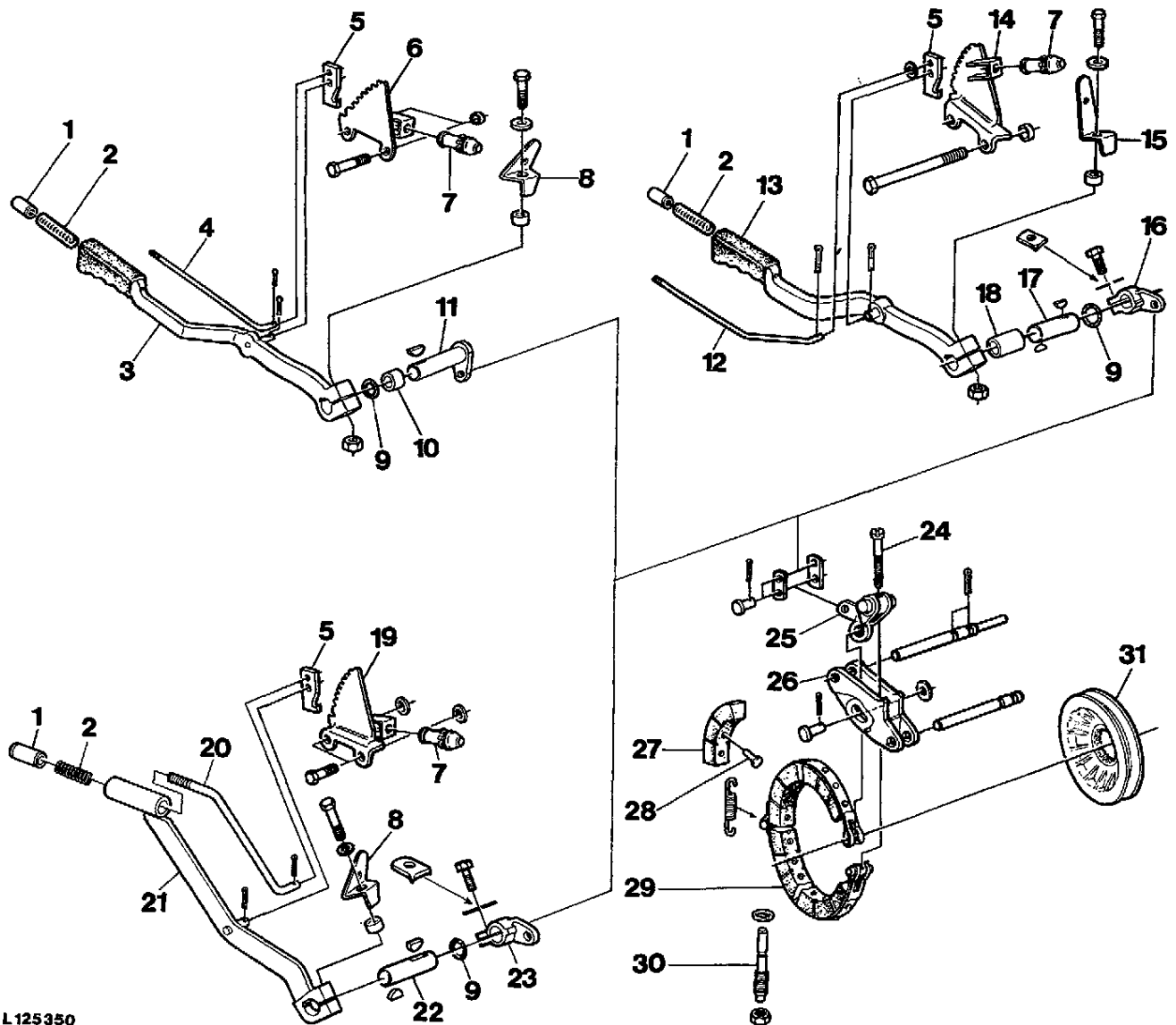
Remove brake band.

NOTE: Removal of brake disk requires removal of differential (see Section 50, Group 50).



L116463-LB36030AE-010267

HANDBRAKE – WITHOUT CAB OR WITH MC1 CAB, EXPLODED VIEW



L125350

- 1-Push button
- 2-Spring
- 3-Handbrake lever*
- 4-Release rod*
- 5-Latch
- 6-Toothed quadrant*
- 7-Sending unit for handbrake indicator light

- 8-Angle bracket
- 9-O-ring
- 10-Spacer bushing*
- 11-Brake shaft*
- 12-Release rod**
- 13-Handbrake lever**
- 14-Toothed quadrant**
- 15-Angle bracket**

- 16-Lever**
- 17-Brake shaft**
- 18-Spacer bushing**
- 19-Toothed quadrant***
- 20-Release rod***
- 21-Handbrake lever***
- 22-Brake shaft***
- 23-Lever***

- 24-Brake band adjusting screw
- 25-Brake band arm
- 26-Ancor
- 27-Brake lining (4 used)
- 28-Special rivet (12 used)
- 29-Brake band assembly
- 30-Brake band support screw
- 31-Brake disk

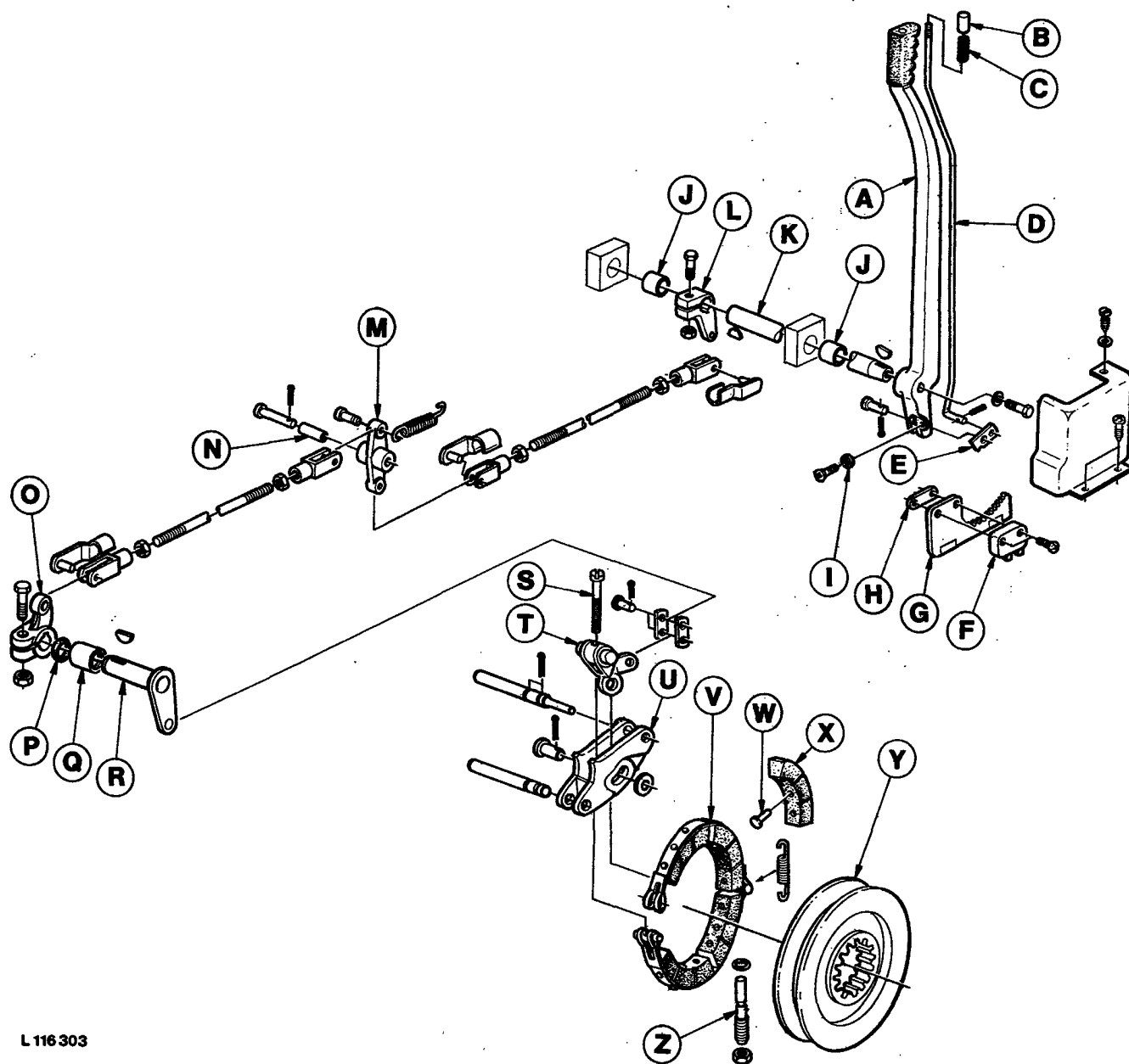
* Tractors without cab

** Tractors with MC1 cab or with heavy-duty final drives

*** 2650N tractors

L125350-LB36030AE-Q10888

HANDBRAKE - WITH SG2 CAB, EXPLODED VIEW



L 116 303

A-Handbrake lever

B-Push button

C-Spring

D-Release rod

E-Latch

F-Sending unit for handbrake indicator light

G-Toothed quadrant

H-Threaded plate

I-Magnet

J-Bushings

K-Brake lever shaft

L-Lever

M-Lever

N-Bushing

O-Lever

P-O-ring

Q-Spacer bushing

R-Brake shaft

S-Brake band adjusting screw

T-Brake band arm

U-Anchor

V-Brake band assy.

W-Special rivet (12 used)

X-Brake lining (4 used)

Y-Brake disk

Z-Brake band support screw

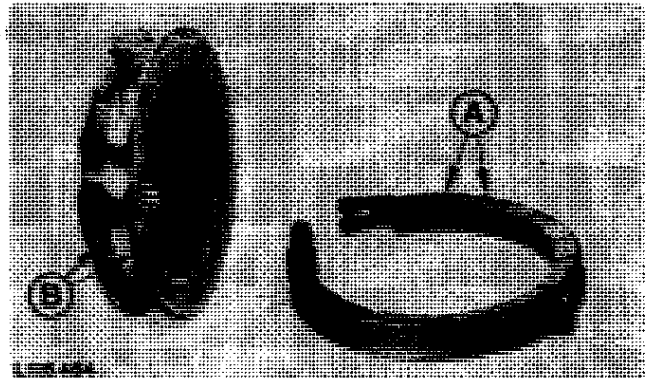
L116303-LB36030AE-000287

REPAIRING BRAKE LININGS AND BRAKE DISK

Replace brake linings if liner grooves (A) are no longer visible or if linings are loose.

NOTE: When riveting on new linings, rivet heads must be on outer side of brake band.

Check braking surfaces (B) of brake disk. Carefully smoothen any rough sections. Replace badly worn or cracked brake disks.



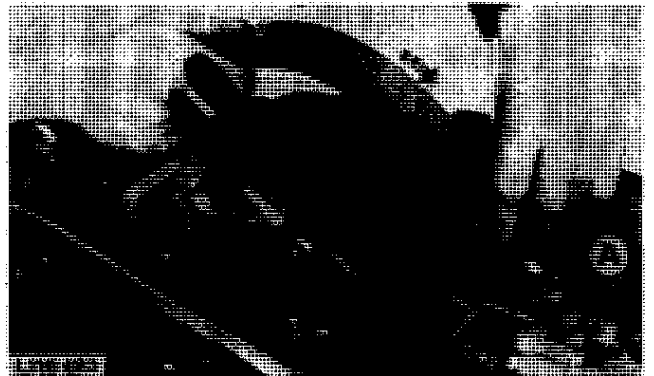
L116464-LB36030AE-010287

INSTALLING BRAKE BAND

Hook in spring (A) and install brake band.

Install brake band operating parts, reversing removal procedure.

NOTE: Coat brake shaft in bearing area in transmission case with Molykote grease type "G" (L81050).



L116493-LB36030AE-010888

FINAL ASSEMBLY

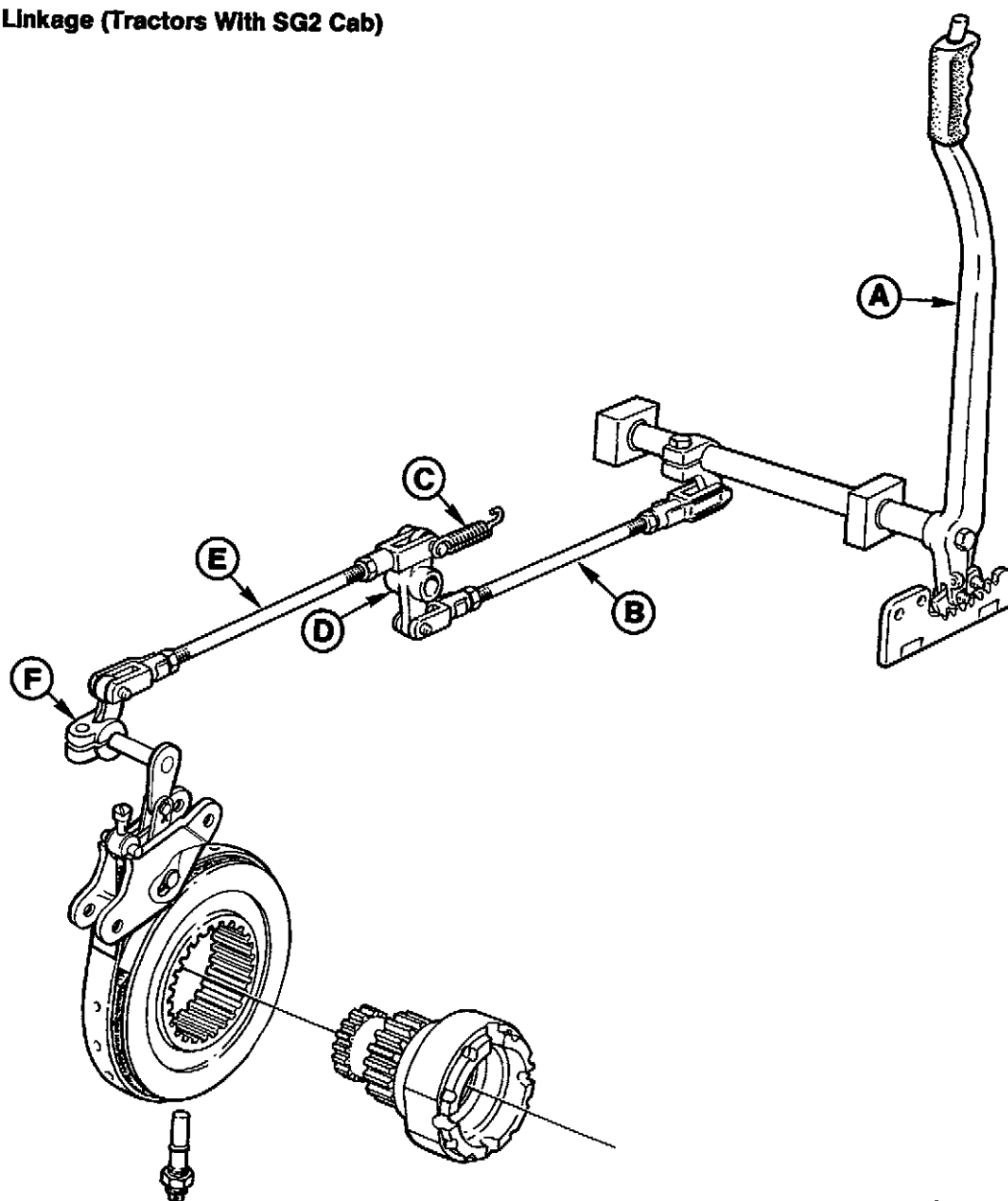
Install rockshaft and left-hand final drive assembly (see Section 10, Group 25).

Refill transmission case with oil (see Section 10, Group 15).

HANDBR-LB36030CE-010287

ADJUSTING HANDBRAKE

Handbrake Linkage (Tractors With SG2 Cab)



L 116307

A—Handbrake lever
B—Front threaded rod

C—Return spring
D—Shift lever

E—Rear threaded rod
F—Lever

Adjust front threaded rod (B) so that return spring (C) gives a return force on handbrake lever.

Adjust rear threaded rod (E) so that it can be installed tension-free in lever (F) and shift lever (D).

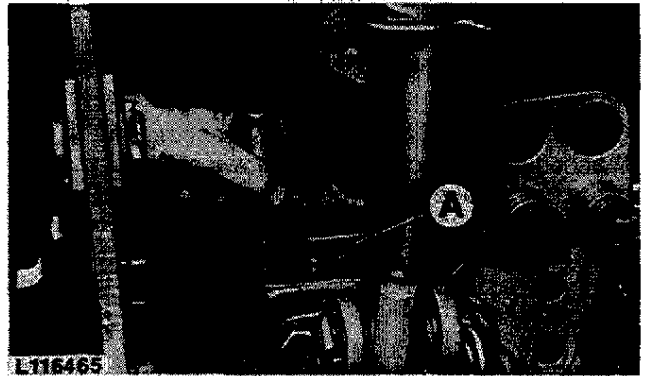
L116307-LB36030AE-010287

Handbrake

Brake Band (On All Tractors)

Engage handbrake lever in first notch of quadrant.

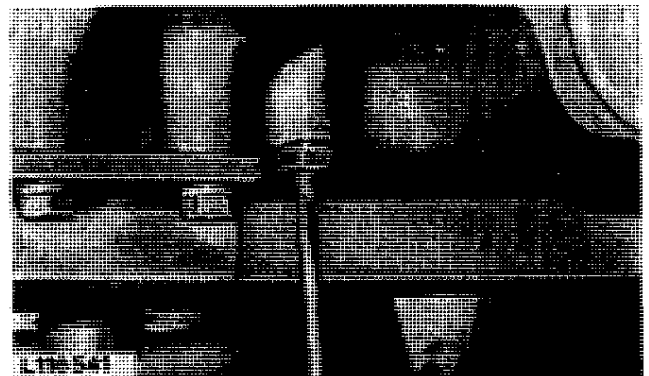
Remove screw plug (A) and tighten brake band adjusting screw hand-tight.



L116465-LB36030AE-010287

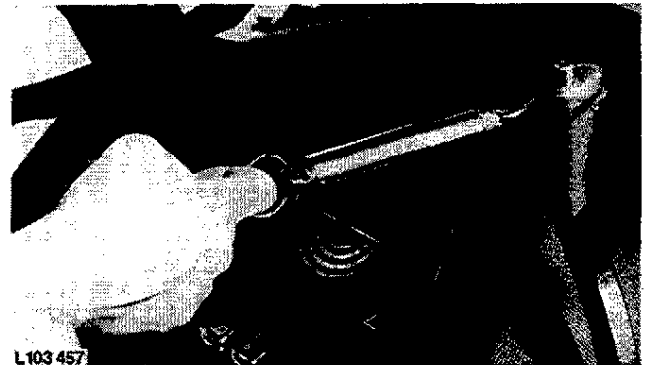
Tighten brake band support screw on underside of transmission case hand-tight, then back off half-a-turn and lock in position by means of hex. nut.

NOTE: When using new brake linings, back off support screw two turns. After approximately 100 hours of operation tighten support screw hand-tight then back off half-a-turn.

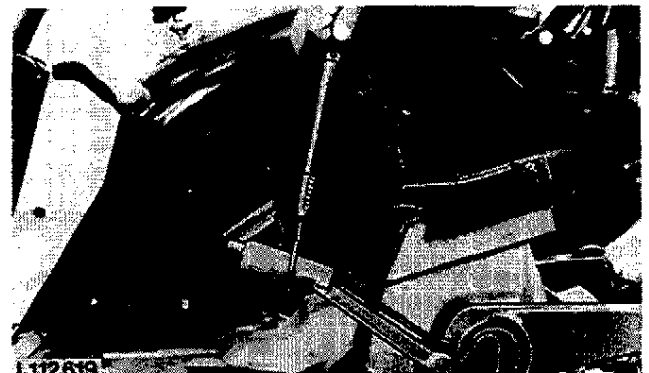


L116541-LB36030AE-010888

Back off brake band adjusting screw until handbrake lever can be pulled into third or fourth notch of quadrant using a force of 110 N (25 lb).



L103457



L112619

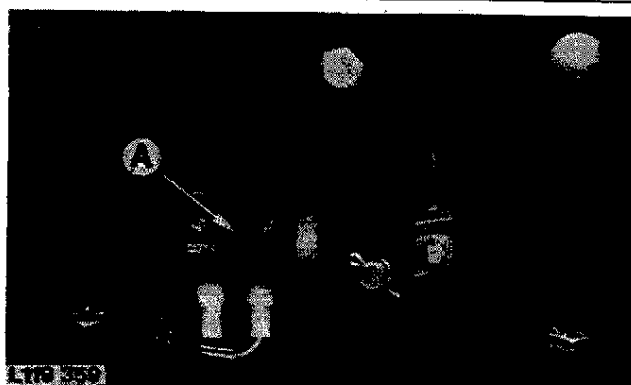
L103457, L112619-LB26020AE-010886

ADJUSTING HANDBRAKE INDICATOR LIGHT SENDING UNIT

On tractors with SG2 cab, adjust sending unit (A) so that handbrake indicator light glows not later than when handbrake lever engages in second notch of the quadrant.

When releasing handbrake lever to the stop, indicator light should go out.

NOTE: No adjustment is necessary on tractors without cab or with MC1 cab.



L119359-LB36030AE-010888

SPECIFICATIONS

BRAKE VALVE

Dimensions of New Parts

Diameter of control valve spool at lands	12.02 to 12.04 mm (0.473 to 0.474 in.)
Diameter of spool bore in valve housing	12.02 to 12.04 mm (0.473 to 0.474 in.)
– up to tractor serial no. 692 738L	
Valve housing and control valve spool are matched pairs with a specified clearance of	0.003 mm to 0.006 mm (0.00012 to 0.00024 in.)
Pressure spring of control valve spool	
– Free spring length	approx. 30 mm (1.18 in.)
– Spring tension at a length of 20 mm (0.79 in.)	35 to 45 N (8 to 10 lb)
– from tractor serial no. 692 739L	
Valve housing and control valve spool are matched pairs with a specified clearance of	0.006 mm to 0.010 mm (0.00024 to 0.00039 in.)
Pressure spring of control valve spool	
– Free spring length	approx. 23,5 mm (0.93 in.)
– Spring tension at a length of 20 mm (0.79 in.)	37 to 43 N (8.3 to 9.5 lb)

DELIVERY VALVES

– up to tractor serial no. 692 738L	
Spring of delivery valve	
– Free spring length	approx. 14 mm (0.55 in.)
– Spring tension at a length of 10 mm (0.39 in.)	20 to 25 N (4.5 to 5.5 lb)
– from tractor serial no. 692 739L	
Spring of delivery valve	
– Free spring length	approx. 13,5 mm (0.53 in.)
– Spring tension at a length of 10 mm (0.39 in.)	19 to 21 N (4.3 to 4.7 lb)

ANHBREM-LB4602SAE-010490

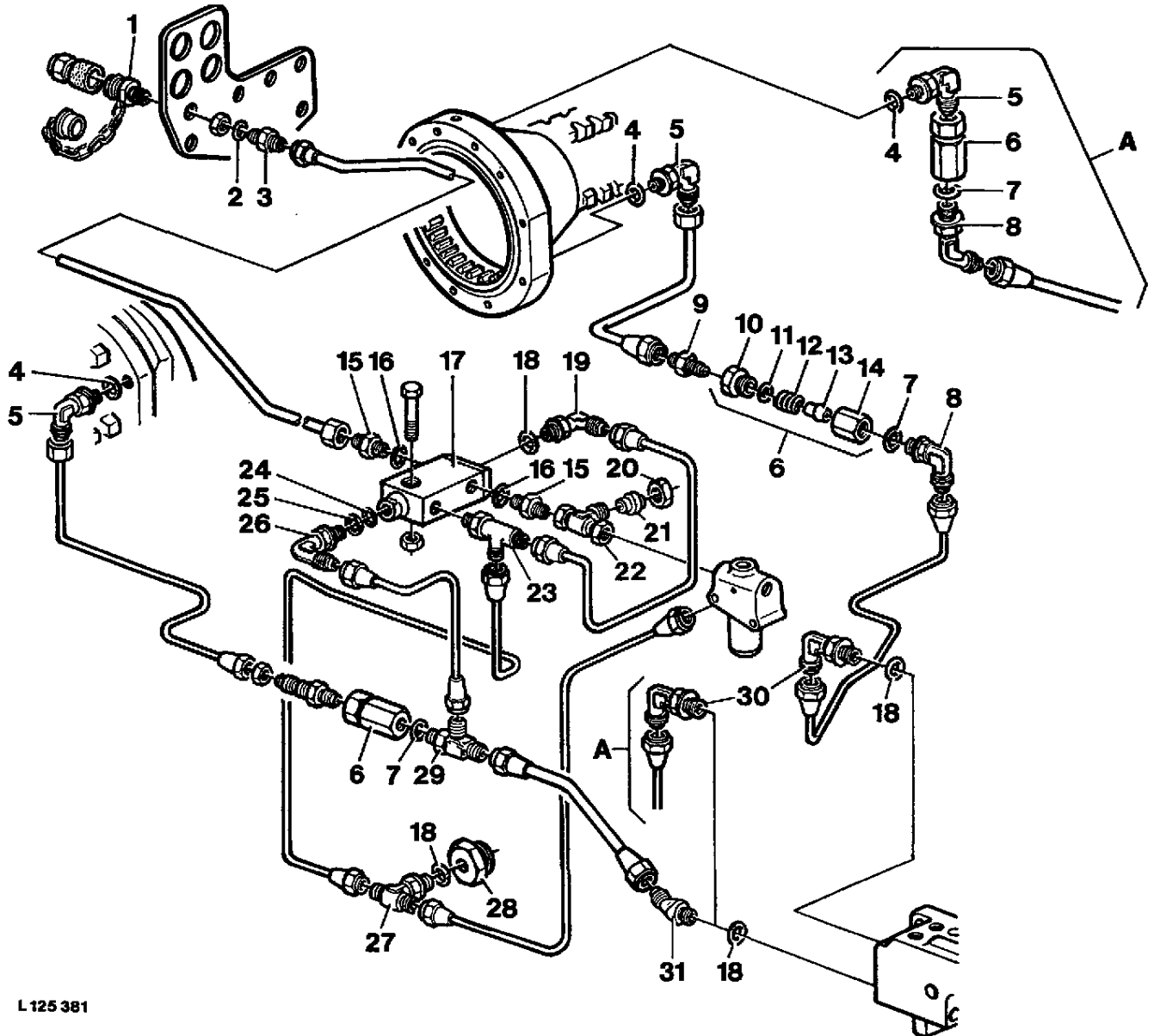
Hydraulic Trailer Brake

TORQUES FOR HARDWARE

Trailer brake valve to console, cap screws	25 Nm (18 ft-lb)
Lock nut of throttle screw	8 Nm (6 ft-lb)
Connecting housing or end cover, hex. socket screws	10 Nm (7 ft-lb)

ANHBREM-LB46025BE-010490

TRAILER BRAKE - EXPLODED VIEW
(Up to Tractor Ser. No. 632 321L; Without Cab or with MC1 Cab)



L 125 381

A-Tractors with MC1 cab
without heavy-duty final
drives only

- 1-Coupler fitting
- 2-O-ring
- 3-Connector
- 4-O-ring
- 5-Elbow fitting
- 6-Pressure valve assy.

- 7-O-ring
- 8-Elbow fitting
- 9-Connector
- 10-Valve cap
- 11-O-ring
- 12-Spring
- 13-Valve body
- 14-Valve housing

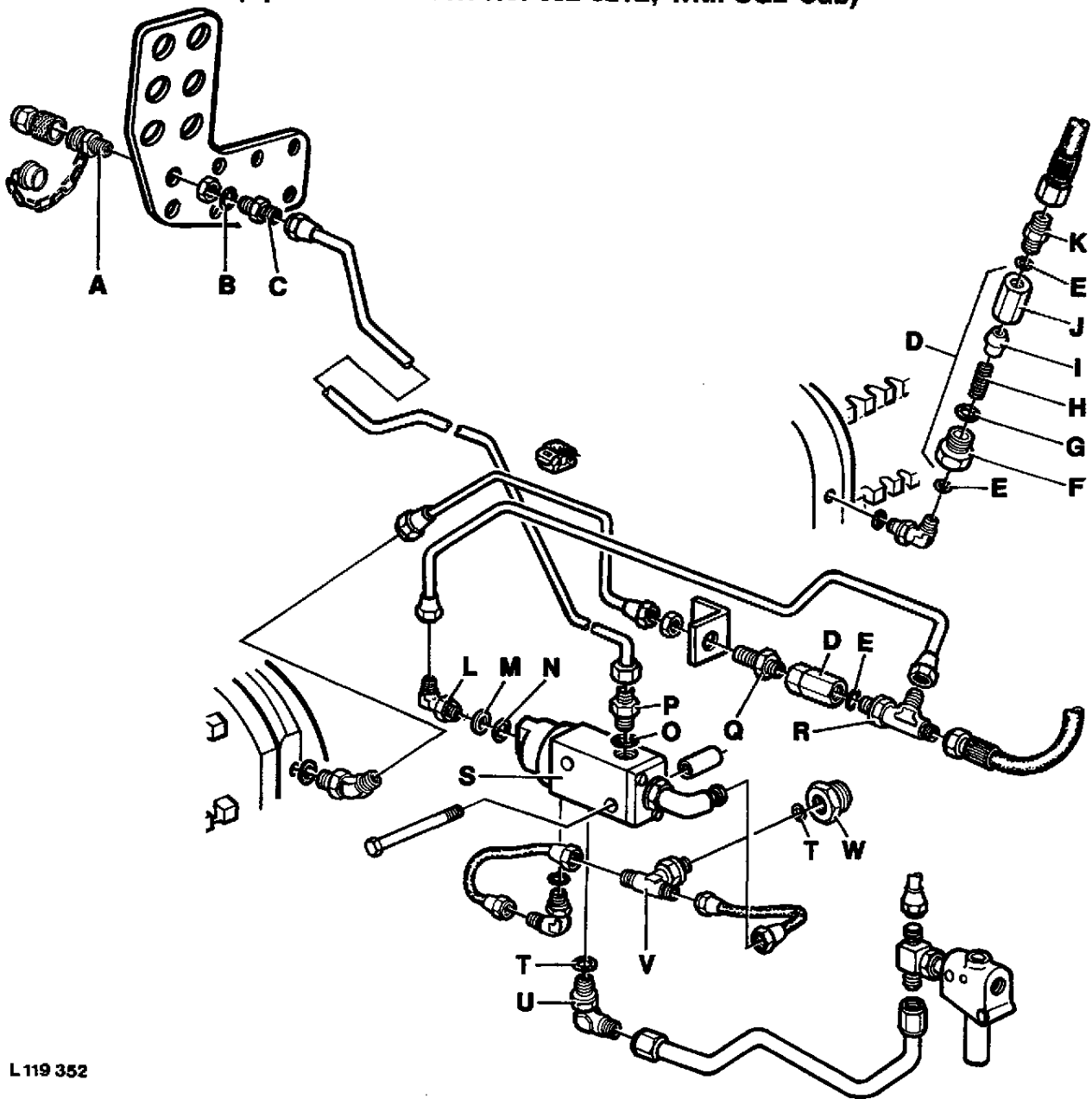
- 15-Connector
- 16-O-ring
- 17-Brake valve assy.
- 18-O-ring
- 19-Elbow fitting
- 20-Union nut*
- 21-Plug*
- 22-T-piece
- 23-T-piece

- 24-O-ring
- 25-Seal ring
- 26-Elbow fitting
- 27-T-piece
- 28-Special threaded
plug
- 29-T-piece
- 30-Elbow fitting
- 31-Elbow fitting

* With manual or power steering only

L125381-LB38035AE-010490

TRAILER BRAKE, EXPLODED VIEW
(Up to Tractor Ser. No. 632 321L; With SG2 Cab)



L 119 352

A-Coupler socket

B-O-ring

C-Connector

D-Pressure valve assembly

E-O-ring

F-Valve cover

G-O-ring

H-Spring

I-Valve body

J-Valve housing

K-Connector

L-Elbow

M-Seal ring

N-O-ring

O-O-ring

P-Connector

Q-Connector

R-T-piece

S-Brake valve assembly

T-O-ring

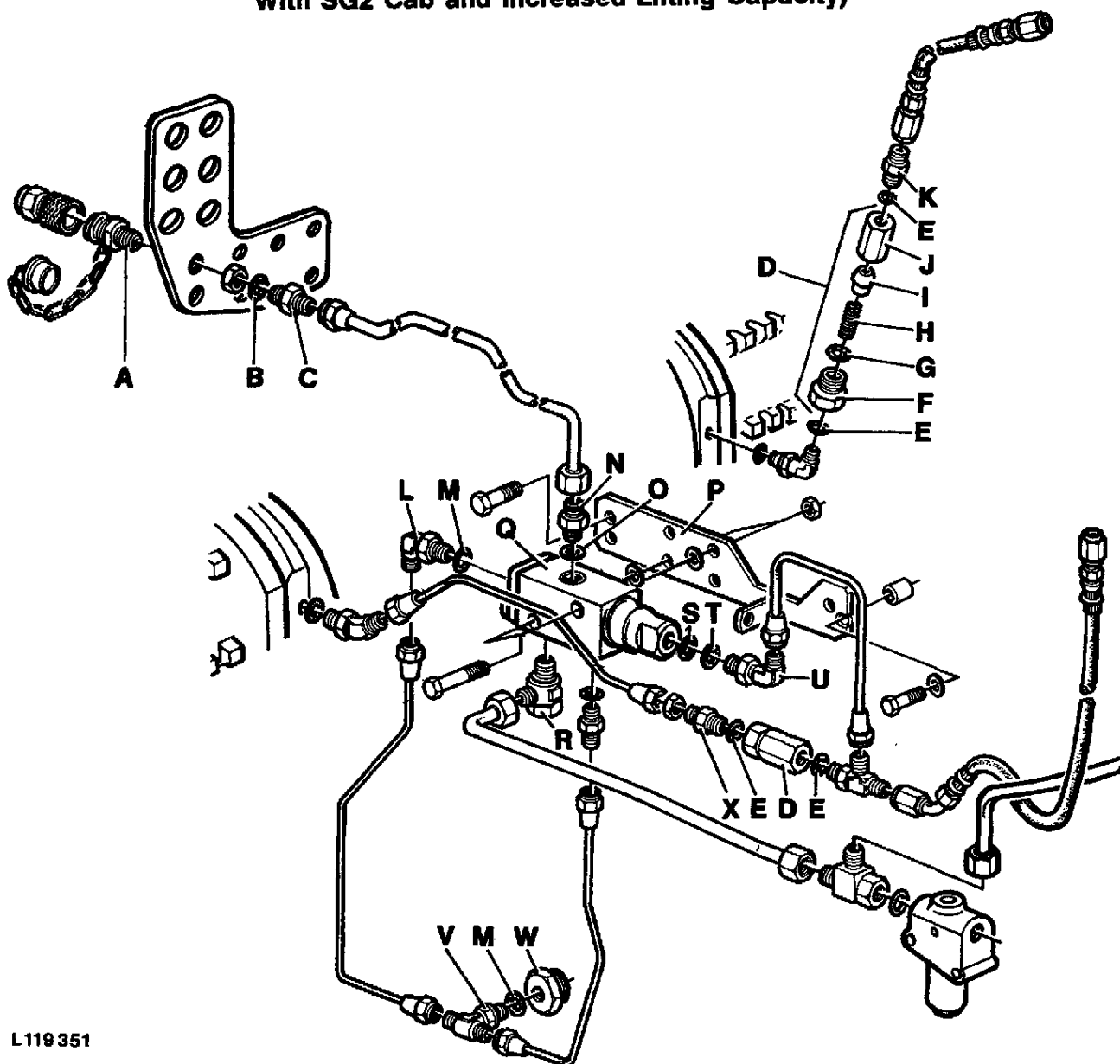
U-Elbow

V-T-piece

W-Special threaded
plugs

L119352-LB26025AE-010490

**TRAILER BRAKE, EXPLODED VIEW (Up to Tractor Ser. No. 632 321L;
With SG2 Cab and Increased Lifting Capacity)**



L119 351

A-Coupler socket
B-O-ring
C-Connector
D-Pressure valve assembly
E-O-ring
F-Valve cover

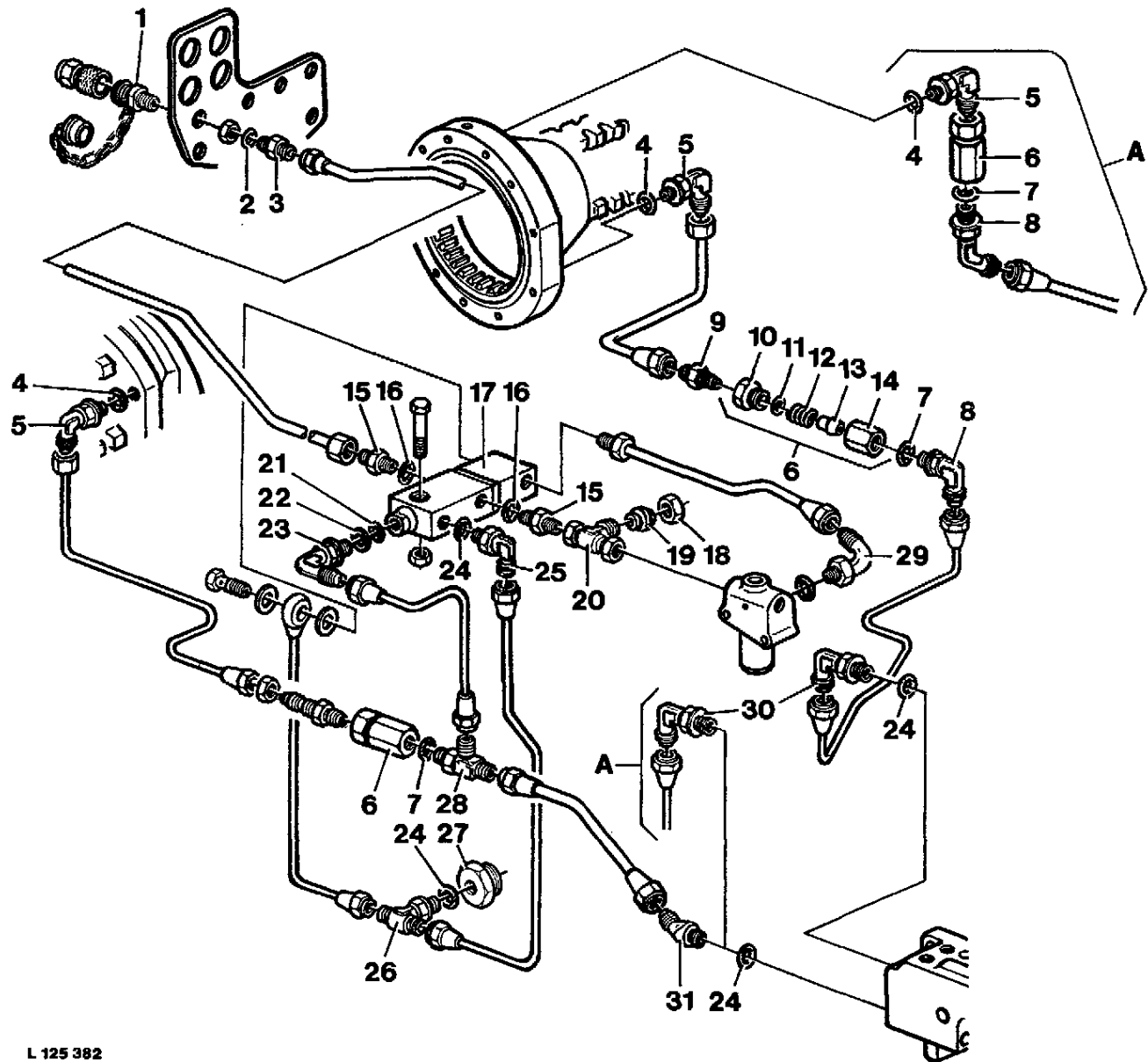
G-O-ring
H-Spring
I-Valve body
J-Valve housing
K-Connector
L-Elbow

M-O-ring
N-Connector
O-O-ring
P-Bracket
Q-Brake valve assembly
R-Elbow assembly

S-O-ring
T-Seal ring
U-Elbow
V-T-piece
W-Special threaded
plugs
X-Connector

L119351-LB26025AE-010490

TRAILER BRAKE – EXPLODED VIEW (From Tractor Ser. No. 632 322L to 692 738L; Without Cab or with MC1 Cab)



L 125 382

A—Tractors with MC1 cab without heavy-duty final drives only
 1—Coupler fitting
 2—O-ring
 3—Connector
 4—O-ring
 5—Elbow fitting
 6—Pressure valve assy.

7—O-ring
 8—Elbow fitting
 9—Connector
 10—Valve cap
 11—O-ring
 12—Spring
 13—Valve body
 14—Valve housing

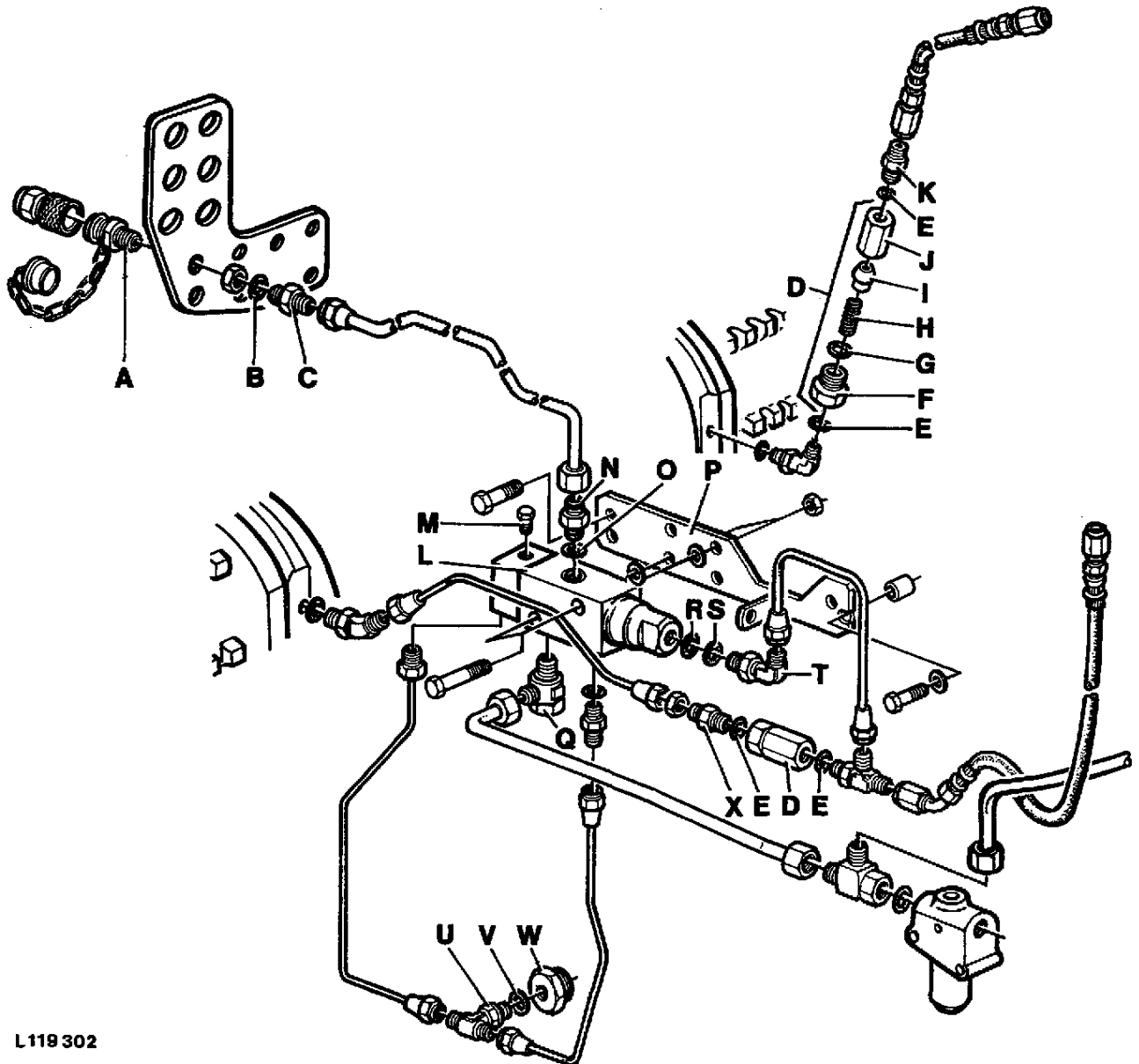
15—Connector
 16—O-ring
 17—Brake valve assy.
 18—Union nut*
 19—Plug*
 20—T-piece
 21—O-ring
 22—Seal ring
 23—Elbow fitting

24—O-ring
 25—Elbow fitting
 26—T-piece
 27—Special threaded plug
 28—T-piece
 29—Elbow fitting
 30—Elbow fitting
 31—Elbow fitting

* With manual or power steering only

L 125382-LB36035AE-010490

TRAILER BRAKE, EXPLODED VIEW (From Tractor Ser. No. 632 322L to 692 738L, With SG2 Cab and With or Without Increased Lifting Capacity)



L119 302

A-Coupler socket
B-O-ring
C-Connector
D-Pressure valve assembly
E-O-ring
F-Valve cover

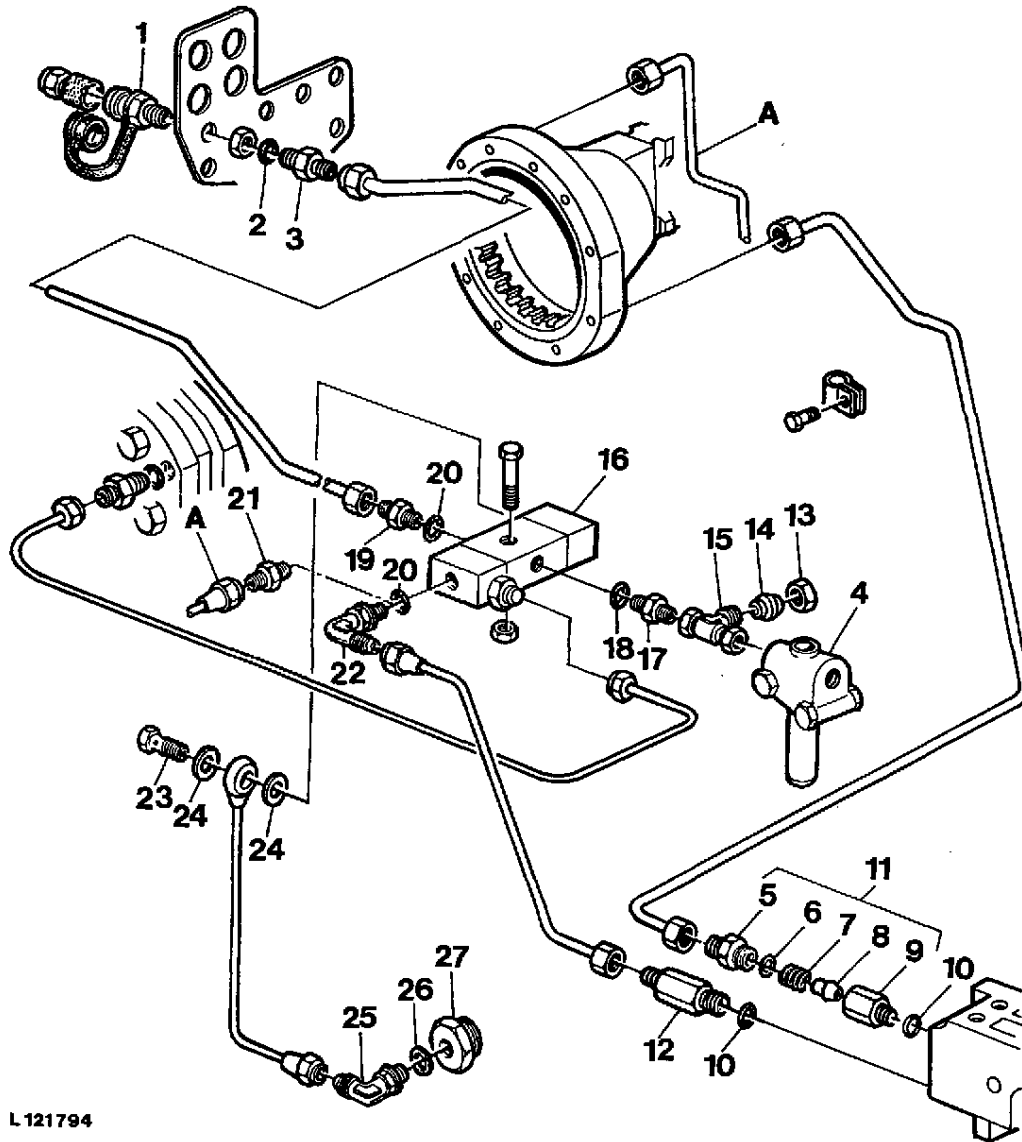
G-O-ring
H-Spring
I-Valve body
J-Valve housing
K-Connector
L-Brake valve assembly

M-End plug
N-Connector
O-O-ring
P-Bracket
Q-Elbow assembly
R-O-ring

S-Seal ring
T-Elbow
U-T-piece
V-O-ring
W-Special threaded plugs
X-Connector

L119302-LB26025AE-010490

TRAILER BRAKE, EXPLODED VIEW
(From Tractor Ser. No. 692 739L; Without Cab or With MC1 cab)



L 121794

A—Tractors with MC1 cab,
without heavy-duty final
drives

- 1—Coupler socket
- 2—O-ring
- 3—Connector
- 4—Pressure reduction valve
- 5—Valve cover
- 6—O-ring
- 7—Spring
- 8—Valve body

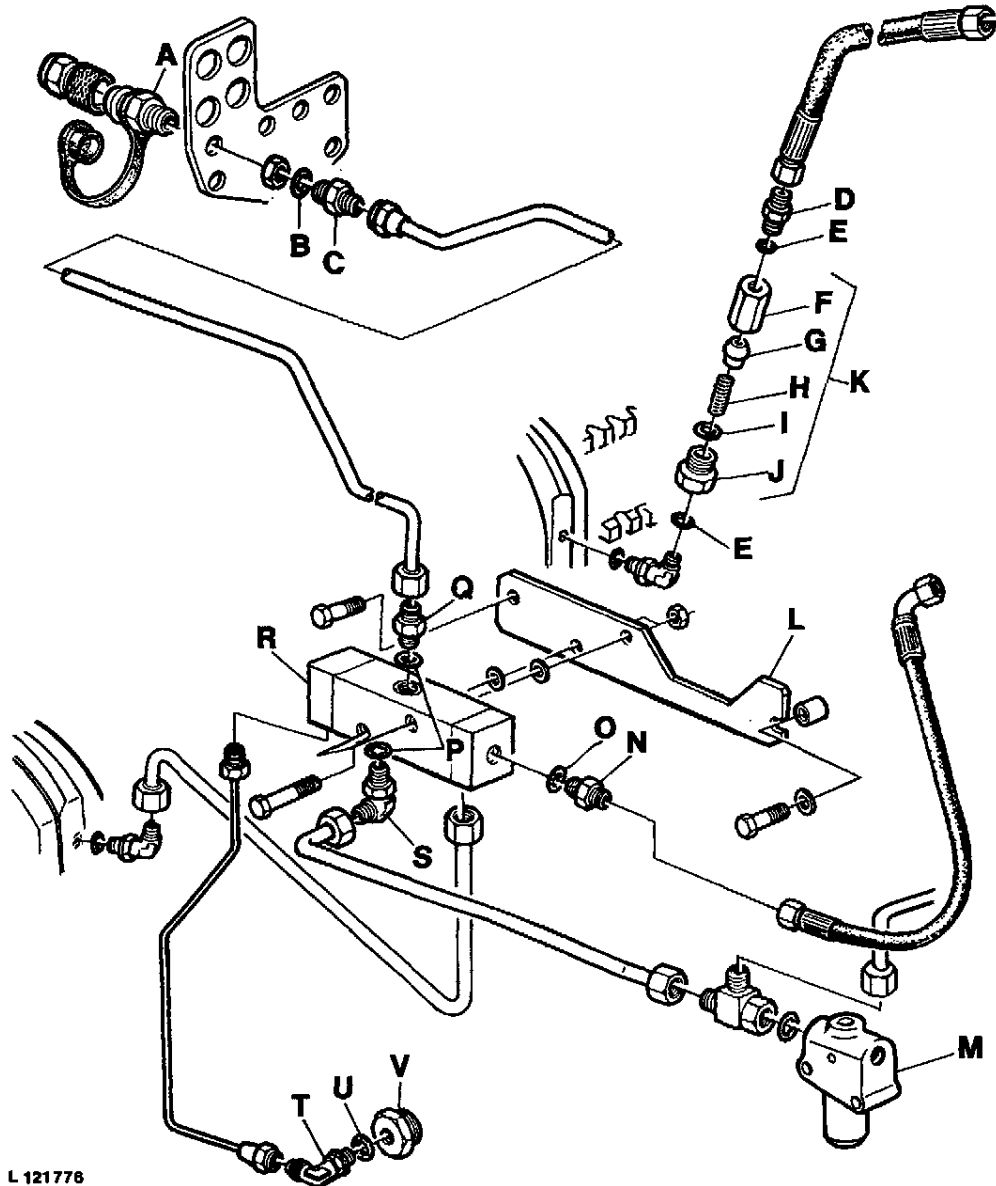
- 9—Valve housing
- 10—O-ring
- 11—Pressure valve assembly
- 12—Spacer
- 13—Union nut*
- 14—Plug*
- 15—Elbow
- 16—Brake valve assembly
- 17—Connector
- 18—O-ring

- 19—Connector
- 20—O-ring
- 21—Connector
- 22—Elbow
- 23—Hollow screw
- 24—Seal ring
- 25—Elbow
- 26—O-ring
- 27—Special threaded plug

* With manual or power steering only

L121794-LB36035AE-010490

TRAILER BRAKE, EXPLODED VIEW
(From Tractor Ser. No. 692 739L, With SG2 Cab and With or Without Increased Lifting Capacity)



A—Coupler socket
B—O-ring
C—Connector
D—Connector
E—O-ring
F—Valve housing

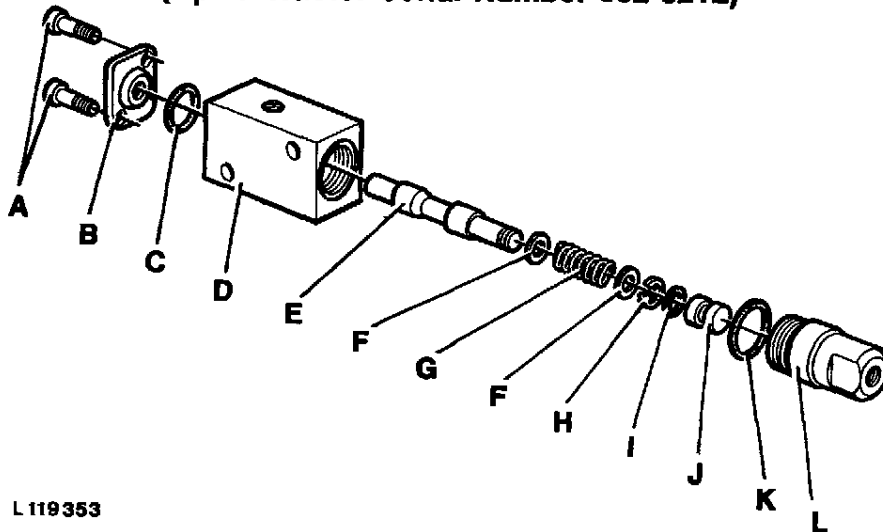
G—Valve body
H—Spring
I—O-ring
J—Valve cover
K—Pressure valve assembly
L—Bracket

M—Pressure reduction valve
N—Connector
O—O-ring
P—O-ring
Q—Connector
R—Brake valve assembly

S—Elbow
T—Elbow
U—O-ring
V—Special threaded plugs

L121776-LB36035AE-010490

BRAKE VALVE, EXPLODED VIEW
(Up to Tractor Serial Number 632 321L)



L 119353

A-Hex. socket screws
B-Valve cover
C-O-ring

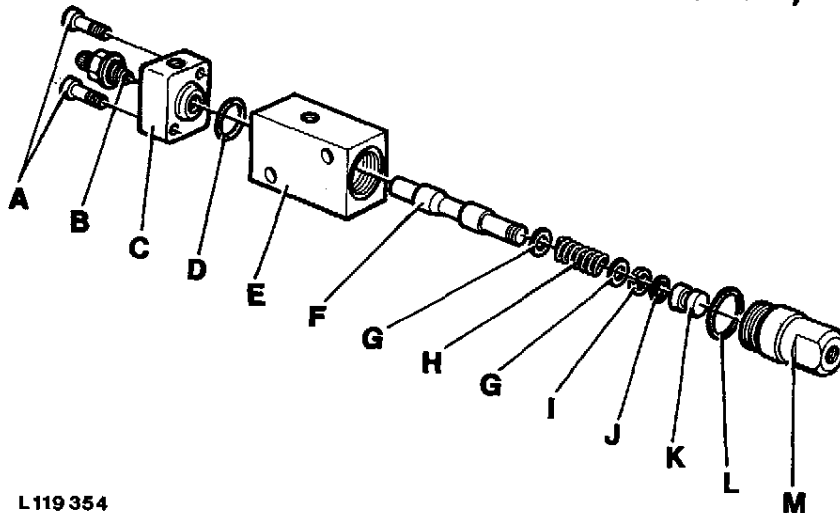
D-Valve housing
E-Spool
F-Washer

G-Spring
H-Snap ring
I-O-ring

J-Piston
K-Seal ring
L-Spring cap

L119353-LB26025AE-010490

BRAKE VALVE, EXPLODED VIEW
(From Tractor Serial Number 632 322L to 692 738L)



L 119 354

A-Hex. socket screws
B-Reduction screw with
lock nut
C-Valve cover

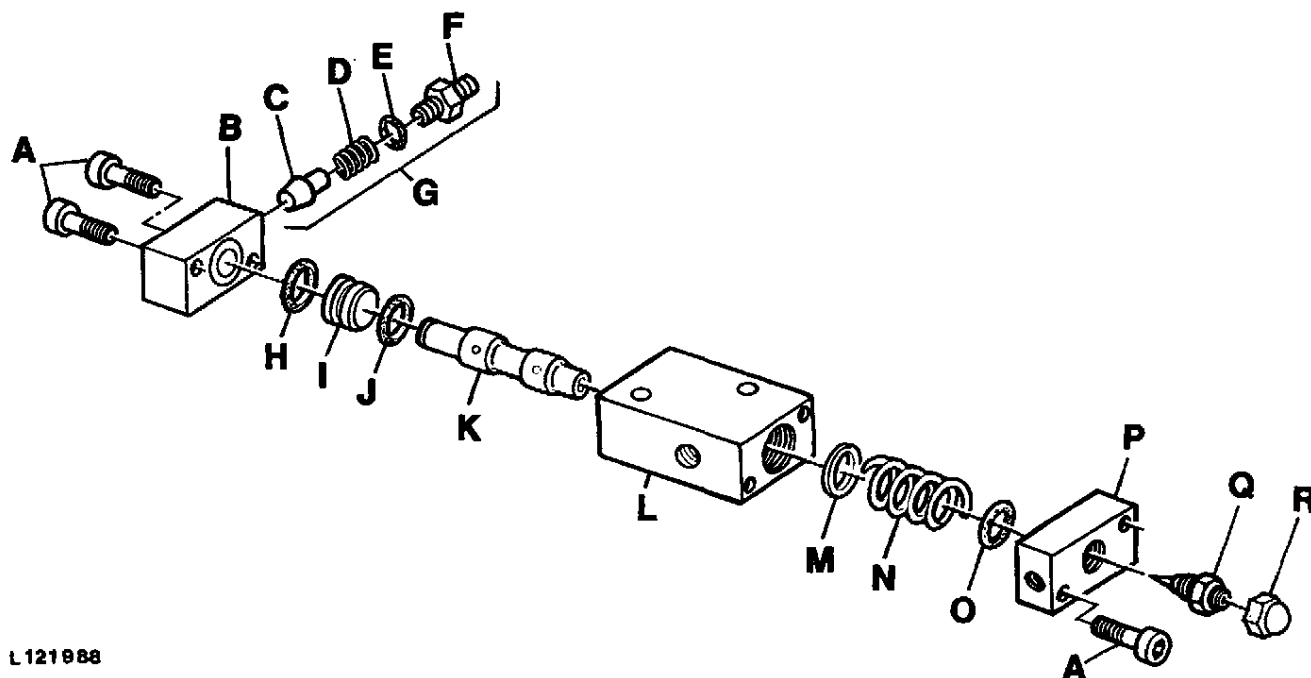
D-O-ring
E-Valve housing
F-Spool
G-Washer

H-Spring
I-Snap ring
J-O-ring

K-Piston
L-Seal ring
M-Spring cap

L119354-LB46025AE-010480

TRAILER BRAKE VALVE, EXPLODED VIEW
(From Tractor Serial Number 692 739L)



L 121988

A-Hex. socket screws (4 used)
B-Connecting housing
C-Valve body
D-Spring
E-O-ring

F-Fitting
G-Pressure valve assy.
H-O-ring
I-Piston
J-O-ring

K-Spool
L-Valve housing
M-Washer
N-Spring
O-O-ring

P-End cover
Q-Throttle screw with lock nut
R-Cap

L121988-LB46025AE-010490

REPAIRING BRAKE VALVE

NOTE: Replace valve spool and valve body as a matched assembly only.

Tractors up to Serial Number 632 321L

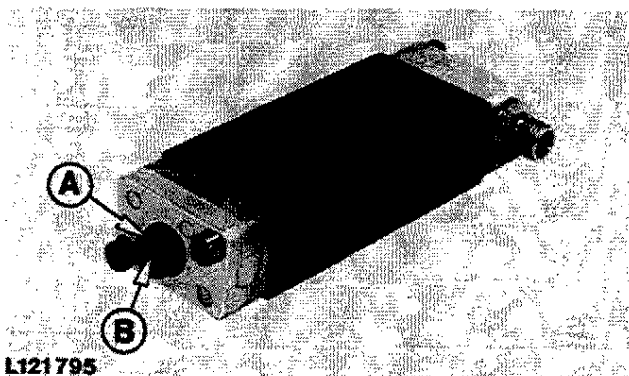
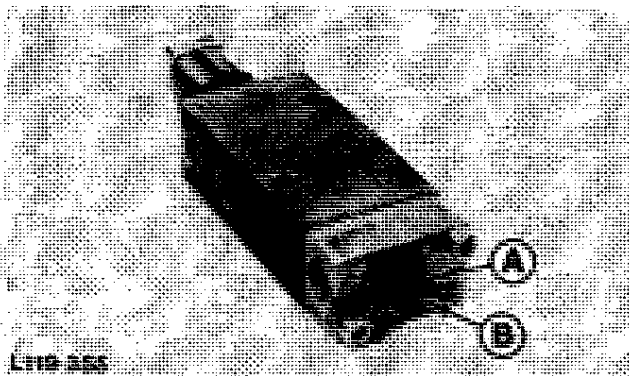
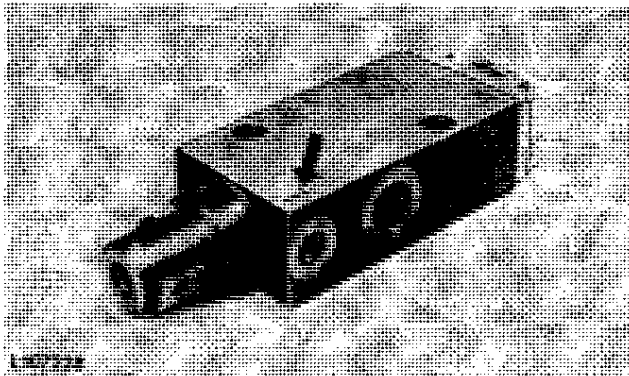
NOTE: It is important to use the correct T-piece or elbow fitting because orifice of T-piece or elbow is matched functionally to valve assembly.

If a T-piece or elbow fitting is required as a replacement part, order T-piece AL25791 or elbow fitting AL37495 with a 1.4 mm (0.055 in.) orifice for a valve housing marked "T". Order T-piece AL25099 or elbow fitting AL37494 with a 1.2 mm (0.047 in.) orifice for an unmarked valve housing.

Tractors from Serial Number 632 322L

NOTE: Should throttle screw (B) be turned or replaced then brake valve must be readjusted.

A—Lock nut
B—Throttle screw



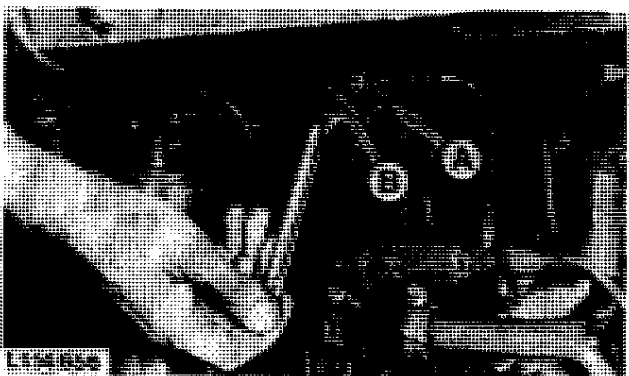
L107238, L119355, L121795-LB46025AE-010490

BLEEDING BRAKE VALVE (Up to Serial Number 692 738L)

Slightly back off hex. nut (B) of brake valve (A).

Slowly operate right-hand brake pedal until oil appears free from air bubbles.

Then retighten hex. nut with brake pedal depressed.



L114656-LB46025AE-010490

ADJUSTING BRAKE VALVE (From Tractor Serial Number 632 322L)

Connect pressure gauge FKM10205 (A) to right-hand brake line.
Connect pressure gauge FKM10207 (G) to coupler plug (I).

A-Pressure gauge FKM10205	E-Special adapter JT05482
B-Pressure gauge adapter FKM10302	F-T-piece AR39795*
C-High-pressure hose FKM10209	G-Gauge FKM10207
D-Adapter FKM10303	H-Male fitting FKM10305
	I-Coupler plug
	J-Coupler socket

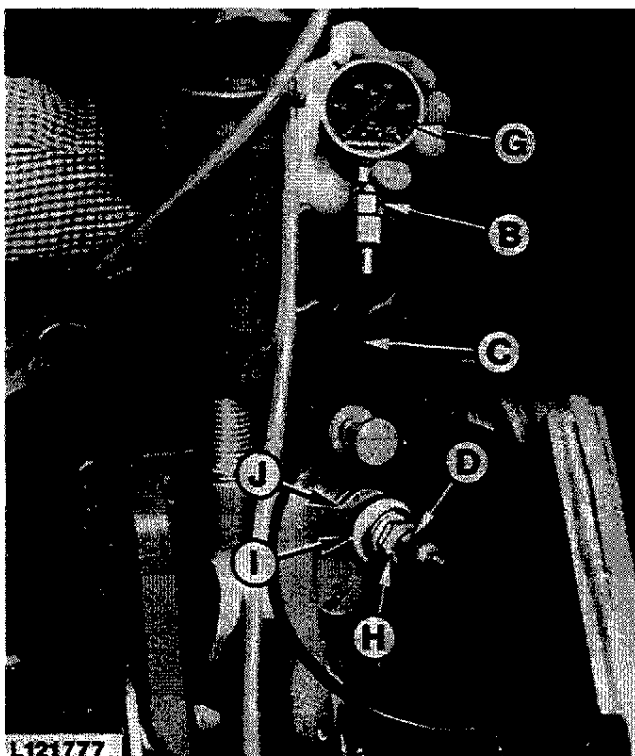
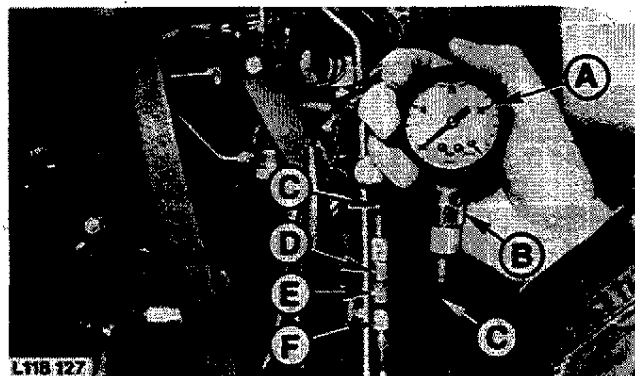
* Already installed on tractors with u.j. drive shaft brake.

NOTE: Before adjusting brake valve, heat hydraulic oil to 65°C (150°F) (see Section 270, Group 05, in Technical Manual "Operation and Tests") and bleed brake system. When adjusting brake valve engine must be run at 1000 rpm.

Turn in throttle screw until cone has seated. Operate right-hand brake until a control pressure of 2000 kPa (20 bar; 290 psi) has been reached. Slowly turn out throttle screw until a braking pressure of 10000 kPa (100 bar; 1450 psi) is shown. Hold throttle screw and tighten lock nut to 8 Nm (6 ft-lb).

Checking Adjustment of Brake Valve:

With a control pressure of 0 kPa (0 bar; 0 psi), braking pressure should also be 0 kPa (0 bar; 0 psi). With a control pressure of 600 kPa (6 bar; 90 psi) braking pressure must be at least 1000 kPa (10 bar; 150 psi). Should the control pressure be now slowly increased, braking pressure should be approximately five times that of the control pressure and with a control pressure of approximately 3000 kPa (30 bar; 440 psi) the maximum braking pressure of 14000 kPa (140 bar; 2030 psi) be reached.



**ADJUSTING BRAKE VALVE (From
Tractor Serial Number 632 322L –
Contd.)**

Should the control pressure be increased suddenly from 0 kPa (0 bar; 0 psi) to 4000 kPa (40 bar; 580 psi), then braking pressure should immediately increase to 14000 kPa (140 bar; 2030 psi). Should the control pressure drop suddenly from 4000 kPa (40 bar; 580 psi), then within one second braking pressure should drop to 1000 kPa (10 bar; 150 psi).

NOTE: Having checked the brake valve, bleed the brake system again.

ANHBREM-LB26025CE-010490

Section 70

HYDRAULIC SYSTEM – REPAIR

05 – VALVES

		2250	2450	2650	2650 N	2850
Specifications	05-1	x	x	x	x	x
Removing by-pass valve of transmission oil filter	05-2	x	x	x	x	x
Installing by-pass valve	05-2	x	x	x	x	x
Removing surge relief valve in clutch housing	05-2	x	x	x	x	x
Replacing seat of surge relief valve	05-3	x	x	x	x	x
Checking pressure control valve	05-3	x	x	x	x	x
Assembling pressure control valve	05-3	x	x	x	x	x
Checking check valve of lube oil circuit	05-4	x	x	x	x	x
Checking check valve of return flow filter (when equipped)	05-4	x	x	x		x
Checking change-over valve – oil return (when equipped)	05-5	x	x	x		x
Adjusting flow control valve	05-5	x	x	x	x	x

10 – HYDRAULIC PUMPS

Special tools	10-1	x	x	x	x	x
Specifications	10-2	x	x	x	x	x
Torques for hardware	10-4	x	x	x	x	x

12 cm³ (0.7 cu. in.) and 23 cm³ (1.4 cu. in.) Hydraulic Pumps

– Hydraulic pump (without through drive shaft), exploded view	10-6	x	x	x	x	x
– Hydraulic pump (with through drive shaft), exploded view	10-7	x	x	x	x	x
– Removing pump drive	10-8	x	x	x	x	x
– Checking pump shaft end play	10-9	x	x	x	x	x
– Disassembling hydraulic pump	10-9	x	x	x	x	x
– Checking pump shaft	10-9	x	x	x	x	x
– Removing discharge valve seats	10-9	x	x	x	x	x
– Installing discharge valve seats	10-10	x	x	x	x	x
– Checking drain passages	10-10	x	x	x	x	x
– Installing pump shaft bearings	10-10	x	x	x	x	x
– Installing pump shaft oil seals	10-10	x	x	x	x	x

HYDRSYST-LB37001AE-010688

10 – HYDRAULIC PUMPS (CONTD.)

12 cm³ (0.7 cu. in.) and 23 cm³ (1.4 cu. in.)
Hydraulic Pumps (Contd.)

		2250	2450	2650	2650 N	2850
– Installing pump shaft	10-11	x	x	x	x	x
– Installing pump cover	10-11	x	x	x	x	x
– Installing pump pistons	10-11	x	x	x	x	x
– Installing pump drive	10-12	x	x	x	x	x
– Installing hydraulic pump	10-13	x	x	x	x	x
– Final installation	10-13	x	x	x	x	x
– Adjusting hydraulic pump	10-13	x	x	x	x	x

40 cm³ (2.4 cu. in.) Hydraulic Pump

– Hydraulic pump (without through drive shaft), exploded view	10-15	x	x	x	x	x
– Hydraulic pump (with through drive shaft), exploded view	10-16	x	x	x	x	x
– Removing pump drive	10-17	x	x	x	x	x
– Checking pump shaft end play	10-18	x	x	x	x	x
– Disassembling pump	10-18	x	x	x	x	x
– Removing taper roller bearings	10-18	x	x	x	x	x
– Checking pump shaft	10-18	x	x	x	x	x
– Checking inlet valves	10-19	x	x	x	x	x
– Removing discharge valve seats	10-19	x	x	x	x	x
– Installing discharge valve seats	10-19	x	x	x	x	x
– Installing pump shaft oil seals	10-19	x	x	x	x	x
– Assembling pump shaft	10-20	x	x	x	x	x
– Pump cover (without through drive shaft), exploded view	10-20	x	x	x	x	x
– Replacing shut-off valve (with through drive shaft), exploded view	10-20	x	x	x	x	x
– Assembling shut-off valve	10-21	x	x	x	x	x
– Removing adjusting screw	10-21	x	x	x	x	x
– Removing crankcase outlet valve and stroke control valve	10-22	x	x	x	x	x
– Installing pump cover	10-22	x	x	x	x	x
– Installing pump pistons	10-23	x	x	x	x	x
– Installing pump drive	10-23	x	x	x	x	x
– Installing hydraulic pump	10-24	x	x	x	x	x
– Final installation	10-24	x	x	x	x	x
– Adjusting hydraulic pump	10-24	x	x	x	x	x

HYDRSYST-LB37002AE-010888

15 – ROCKSHAFT

		2250	2450	2650	2650 N	2850
Special tools	15-1	x	x	x	x	x
Specifications	15-1	x	x	x	x	x
Torques for hardware	15-4	x	x	x	x	x
Preparatory work	15-5	x	x	x	x	x
Removing rockshaft cylinder linkage	15-5	x	x	x	x	x
Removing rockshaft cylinder	15-5	x	x	x	x	x
Removing rockshaft piston	15-5	x	x	x	x	x
Installing sealing kit	15-6	x	x	x	x	x
Replacing pressure and discharge valves	15-6	x	x	x	x	x
Replacing pressure relief valve	15-6	x	x	x	x	x
Removing surge relief valve	15-7	x	x	x	x	x
Installing surge relief valve	15-7	x	x	x	x	x
Replacing check valve	15-7	x	x	x	x	x
Installing rockshaft cylinder and valve linkage	15-8	x	x	x	x	x
Adjusting valve control lever	15-8	x	x	x	x	x
Replacing flow control valve	15-8	x	x	x	x	x
Installing rockshaft	15-9	x	x	x	x	x
Replacing bearing bushings	15-9	x	x	x	x	x
Installing lift arms	15-9	x	x	x	x	x
Preassembling rockshaft cam	15-9	x	x	x	x	x
Aligning crank arm	15-10	x	x	x	x	x
Installing rockshaft piston	15-10	x	x	x	x	x
Installing rockshaft cylinder	15-10	x	x	x	x	x
Adjusting lift limit	15-11	x	x	x	x	x
Preassembling rockshaft cylinder linkage	15-11	x	x	x	x	x
Installing rockshaft cylinder linkage	15-11	x	x	x	x	x
Assembling rate-of-drop screw	15-11	x	x	x	x	x
Installing rate-of-drop screw	15-12	x	x	x	x	x
Replacing load control arm	15-12	x	x	x	x	x
Replacing cam follower	15-12	x	x	x	x	x
Installing cam follower	15-12	x	x	x	x	x
Replacing load control shaft	15-13	x	x	x	x	x
Replacing bearing bushings	15-13	x	x	x	x	x
Installing bearing block	15-13	x	x	x	x	x
Securing sway blocks	15-14	x	x	x		x
Replacing additional rockshaft cylinder	15-14			x		x
Replacing bearing of additional rockshaft cylinder	15-14			x		x
Disassembling additional rockshaft cylinder	15-15			x		x
Replacing seal ring and wiper seal	15-15			x		x
Assembling additional rockshaft cylinder	15-15			x		x

15 – ROCKSHAFT (CONTD.)

		2250	2450	2650	2650 N	2850
Three-point hitch, exploded view						
– With increased lifting capacity	15-16	x	x	x		x
– With quick-coupling (hook type) draft links	15-17	x	x	x		x
– With telescopic draft links	15-18	x	x	x		x
– With reversible draft links	15-19	x	x	x		x
Stabilizer rod, sectional view	15-20	x	x	x		x
Stabilizer rod, exploded view	15-20	x	x	x		x
Control lever (with SG2 cab), exploded view	15-21	x	x	x		x
Selector lever (with SG2 cab), exploded view	15-21	x	x	x		x
Control lever (with MC1 cab), exploded view	15-22	x	x	x		x
Selector lever (with MC1 cab), exploded view	15-23	x	x	x		x
Control lever (without cab), exploded view	15-23	x	x	x		x
Selector lever (without cab), exploded view	15-24	x	x	x		x
Control lever (narrow tread tractors), exploded view	15-24	x	x	x	x	x
Selector lever (narrow tread tractors), exploded view	15-24	x	x	x	x	x
Rockshaft Adjustment – With SG2 Cab	15-25	x	x	x		x
– Adjusting load control arm	15-26	x	x	x		x
– Adjusting selector lever	15-26	x	x	x		x
– Adjusting valve clearance	15-27	x	x	x		x
– Adjusting control lever	15-28	x	x	x		x
– Adjusting commencement of lift with load control	15-29	x	x	x		x
– Rate-of-drop adjustment	15-29	x	x	x		x
– Load-and-depth functional test	15-29	x	x	x		x
– General functional test	15-30	x	x	x		x
– Adjusting movement of control lever	15-30	x	x	x		x
– Remote control, exploded view	15-31	x	x	x		x
– Installing remote control cable	15-32	x	x	x		x
– Assembling remote control unit	15-32	x	x	x		x
– Adjusting remote control cable	15-32	x	x	x		x
– Adjusting and checking rockshaft remote control	15-33	x	x	x		x

		2250	2450	2650	2650 N	2850
15 – ROCKSHAFT (CONTD.)						
Rockshaft Adjustment – With MC1 Cab and Without Cab	15-34	x	x	x	x	x
– Adjusting load control arm	15-35	x	x	x	x	x
– Adjusting valve clearance	15-35	x	x	x	x	x
– Adjusting control lever	15-37	x	x	x	x	x
– Adjusting commencement of lift with load control	15-38	x	x	x	x	x
– Rate-of-drop adjustment	15-39	x	x	x	x	x
– Load-and-depth functional test	15-39	x	x	x	x	x
– General functional test	15-39	x	x	x	x	x
– Adjusting movement of selector lever	15-40	x	x	x	x	x
– Remote control, exploded view	15-41	x	x	x		x
– Installing remote control cable	15-42	x	x	x		x
– Assembling remote control unit	15-42	x	x	x		x
– Adjusting remote control cable	15-42	x	x	x		x
– Adjusting and checking rockshaft remote control	15-43	x	x	x		x
20 – FRONT HITCH						
Removing and installing front hitch	20-1	x	x	x		x
Removing lift cylinder	20-1	x	x	x		x
Lift cylinder, sectional view	20-1	x	x	x		x
Front hitch, exploded view	20-2	x	x	x		x
25 – SELECTIVE CONTROL VALVES – SPOOL TYPE						
Specifications	25-1	x	x	x	x	x
Torques for hardware	25-1	x	x	x	x	x
Removing selective control valves	25-2	x	x	x	x	x
Removing pinion shaft	25-2	x	x	x	x	x
Removing valve spool	25-3	x	x	x	x	x
Replacing V-packing	25-3	x	x	x	x	x
Selective control valve, sectional view	25-3	x	x	x	x	x
Assembling selective control valve	25-4	x	x	x	x	x
Installing end cover	25-4	x	x	x	x	x
Installing pinion shaft	25-4	x	x	x	x	x

**25 – SELECTIVE CONTROL VALVES –
SPOOL TYPE (CONTD.)**

		2250	2450	2650	2650 N	2850
Adjusting lever	25-5	x	x	x	x	x
Installing selective control valves	25-5	x	x	x	x	x
Installing control lever linkage (with SG2 cab)	25-6	x	x	x		x
Installing lever shafts (with SG2 cab)	25-6	x	x	x		x
Adjusting control lever linkage (with SG2 cab)	25-6	x	x	x		x

**30 – SELECTIVE CONTROL VALVES –
POPPET VALVE TYPE**

Special tools	30-1	x	x	x		x
Specifications	30-1	x	x	x		x
Torques for hardware	30-2	x	x	x		x
Removing selective control valve	30-3	x	x	x		x
Disassembling selective control valve	30-3	x	x	x		x
Removing flow control valve	30-3	x	x	x		x
Removing pressure and return valves	30-4	x	x	x		x
Removing detent pin	30-4	x	x	x		x
Removing detent cartridge	30-4	x	x	x		x
Disassembling detent cartridge	30-5	x	x	x		x
Removing rocker assembly	30-5	x	x	x		x
Inspecting valve seats	30-5	x	x	x		x
Installing detent cartridge	30-6	x	x	x		x
Overhauling flow control valve stop	30-6	x	x	x		x
Installing flow control valve	30-6	x	x	x		x
Installing pressure and return valves	30-6	x	x	x		x
Installing cover	30-7	x	x	x		x
Assembling rocker assembly	30-7	x	x	x		x
Installing detent cam followers	30-7	x	x	x		x
Installing rocker assembly	30-8	x	x	x		x
Installing spring pin	30-8	x	x	x		x
Adjusting selective control valve	30-8	x	x	x		x
Installing selective control valve	30-11	x	x	x		x
Adjusting control lever (without SG2 cab)	30-11	x	x	x		x
Checking selective control valve	30-12	x	x	x		x

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		2250	2450	2650	2650N	2850
35 – ISO BREAKAWAY COUPLERS						
Special tools	35-1	x	x	x		x
Specifications	35-2	x	x	x		x
Torques for hardware	35-2	x	x	x		x
Removing breakaway coupler	35-3	x	x	x		x
Removing dust cap	35-3	x	x	x		x
Removing cover	35-3	x	x	x		x
Removing snap ring	35-3	x	x	x		x
Removing coupler	35-4	x	x	x		x
Disassembling coupler	35-4	x	x	x		x
Overhauling coupler components	35-4	x	x	x		x
Breakaway coupler, exploded view	35-5	x	x	x		x
Repairing housing	35-6	x	x	x		x
Assembling coupler	35-6	x	x	x		x
Tightening coupler socket	35-7	x	x	x		x
Installing coupler	35-7	x	x	x		x
Installing cover	35-8	x	x	x		x
Installing breakaway coupler	35-8	x	x	x		x
Layout of leak-off lines	35-9	x	x	x		x
40 – ISO QUICK COUPLERS						
ISO quick coupler, exploded view	40-1	x	x	x	x	x
Replacing back-up ring and O-ring	40-1	x	x	x	x	x
45 – REMOTE CYLINDER						
Specifications	45-1	x	x	x	x	x
Torques for hardware	45-1	x	x	x	x	x
Removing cover	45-2	x	x	x	x	x
Removing piston	45-2	x	x	x	x	x
Removing piston rod guide	45-2	x	x	x	x	x
Overhauling piston rod guide	45-2	x	x	x	x	x
Assembling stop rod	45-3	x	x	x	x	x
Installing seal	45-3	x	x	x	x	x
Installing piston rod guide	45-3	x	x	x	x	x
Installing piston	45-3	x	x	x	x	x
Installing cover	45-4	x	x	x	x	x
Bleeding remote cylinder	45-4	x	x	x	x	x

SPECIFICATIONS

Dimensions of New Parts

BY-PASS VALVE OF TRANSMISSION OIL FILTER

Synchronized Transmission

Spring of by-pass valve:

- Free length	approx. 68 mm (2.68 in.)
- Spring tension at a length of 38 mm (1.50 in.)	80 to 95 N (18 to 21 lb)
- Spring tension at a length of 49 mm (1.93 in.)	50 to 60 N (11 to 13 lb)

Collar Shift Transmission

Spring of by-pass valve:

- Free length	approx. 65 mm (2.56 in.)
- Spring tension at a length of 33 mm (1.30 in.)	42 to 52 N (9.5 to 11.5 lb)

SURGE RELIEF VALVE (SAFETY VALVE) IN CLUTCH HOUSING

Spring of surge relief valve:

- Free length	approx. 48 mm (1.88 in.)
- Spring tension at a length of 28.5 mm (1.12 in.)	140 to 170 N (30 to 37 lb)

PRESSURE CONTROL VALVE OF HYDROSTATIC OR POWER STEERING

Spring of pressure control valve:

- Free length	approx. 117 mm (4.62 in.)
- Spring tension at a length of 89 mm (3.5 in.)	200 to 250 N (45 to 55 lb)

CHECK VALVE OF LUBE OIL CIRCUIT

Spring of check valve:

- Free length	20 mm (0.79 in.)
- Spring tension at a length of 12 mm (0.47 in.)	20 N (4.5 lb)

VENTILE-LB37005AE-010888

SPECIFICATIONS (CONTD.)

CHANGE-OVER VALVE IN OIL RETURN SYSTEM (When Equipped)

Change-over valve spring:

- Free length 24.5 mm (0.96 in.)
- Spring tension at a length
of 15 mm (0.6 in.) 38 N (8.5 lb)

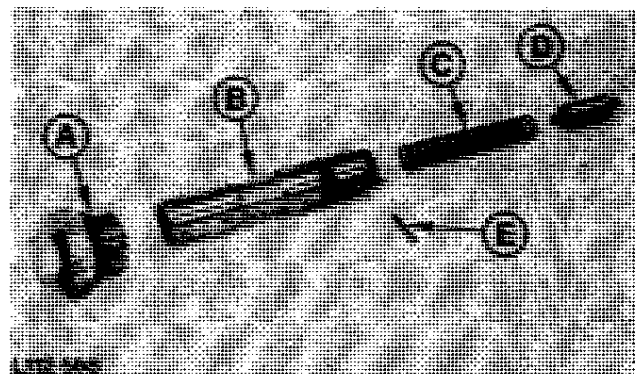
VENTILE-LB47005BE-000687

REMOVING BY-PASS VALVE OF TRANSMISSION OIL FILTER

Drive out spring pin (E) and check spring (C).

A-Plug
B-Valve sleeve
C-Spring

D-Valve
E-Spring pin



L112568-LB27005AE-010886

INSTALLING BY-PASS VALVE

NOTE: When installing by-pass valve on tractors with synchronized transmission, make sure that shoulder on rear end of valve sleeve (see arrow) is at the bottom.



L114737-LB47005AE-010687

REMOVING SURGE RELIEF VALVE IN CLUTCH HOUSING

Check tensioning force of spring (C). When installing valve, use same number of shims (B) installed prior to removal.

A-Plug
B-Shims

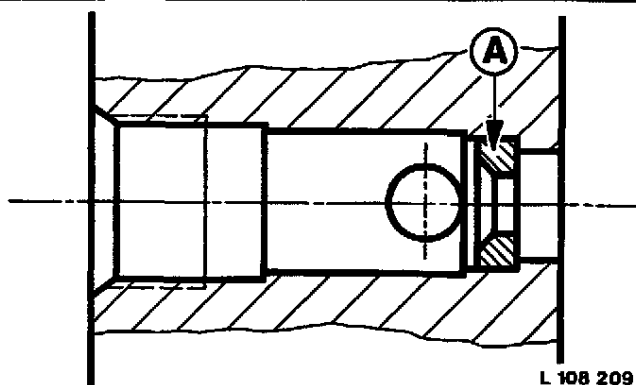
C-Spring
D-Ball



L114738-LB47005AE-010687

REPLACING SEAT OF SURGE RELIEF VALVE

Press new valve seat (A) into clutch housing until it bottoms.



L 108 209

L108209-LA77005AE-281184

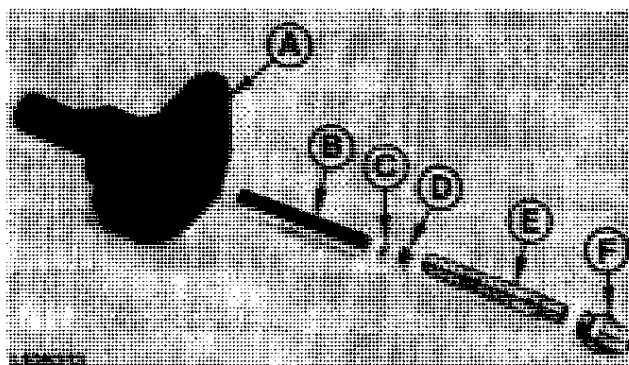
CHECKING PRESSURE CONTROL VALVE

Check tension of spring (B).

Check orifice fitting (D) for wear and replace, when necessary.

A-Valve housing
B-Spring
C-Shim

D-Orifice fitting
E-Spool
F-Connector

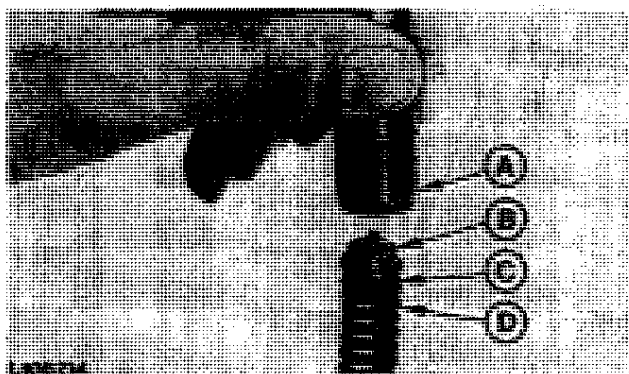


L108213-LA77005AE-001184

ASSEMBLING PRESSURE CONTROL VALVE

Slide spool (A) over spring (D). Adjust pressure control valve by adding shims (C), see Technical Manual "Operation and Tests", Section 270. Adding or removing shims increases or reduces pressure by 250 to 280 kPa (2.5 to 2.8 bar; 35 to 40 psi).

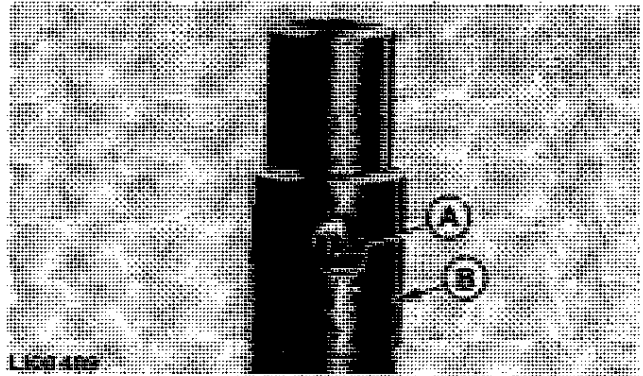
A-Spool
B-Orifice fitting
C-Shims (use as required)
D-Spring



L108214-LB37005AE-010287

Valves

Make sure orifice fitting (A) is seated correctly in spool (B).

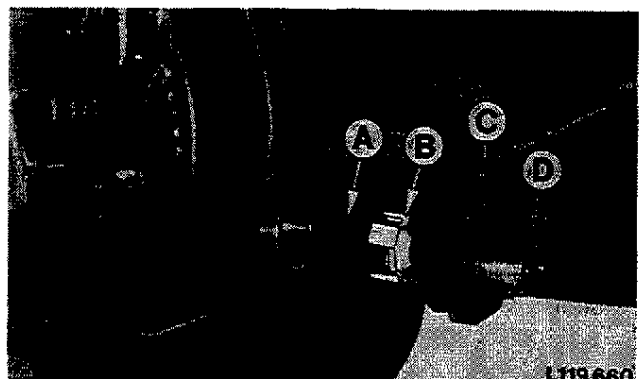


L108489-LA77005AE-001184

CHECKING CHECK VALVE OF LUBE OIL CIRCUIT

Check spring (A) and valve seat.

- A-Spring
- B-Valve body
- C-Valve housing
- D-O-ring



L119660-LB27005AE-010488

CHECKING CHECK VALVE OF RETURN FLOW FILTER (When Equipped)

No oil should leak from valve seat (B) when changing the filter.

- A-Housing
- B-Valve seat
- C-Filter



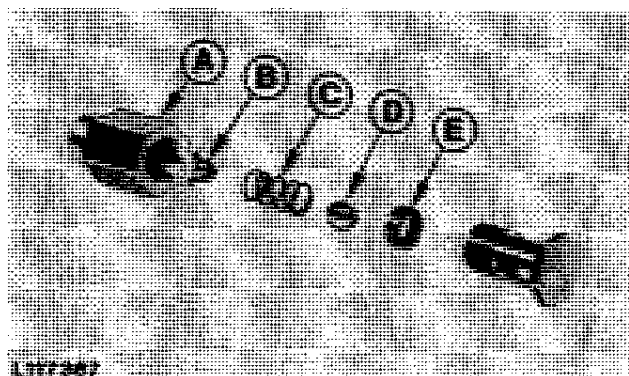
L115497-LB37005AE-010287

CHECKING CHANGE-OVER VALVE IN OIL RETURN SYSTEM (When Equipped)

With Poppet Valve Type Selective Control Valves

Tractors Without Cab

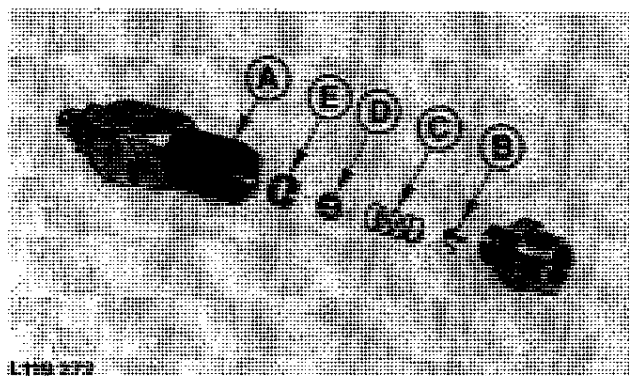
Disconnect oil return line between selective control valve and rockshaft housing. Check tension of spring (C).



L117267

Tractors With SG2 Cab

Disconnect union at selective control valve. Check tension of spring (C).



L119272

A-Housing
B-Stop
C-Spring

D-Ball
E-Ball seat

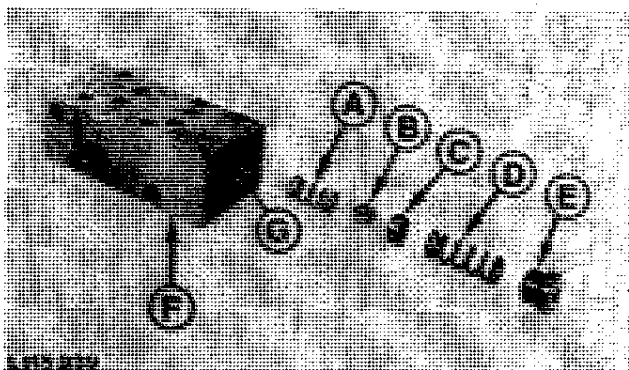
L117367, L119272-LB37005AE-010686

With Spool Type Selective Control Valves

Check tension of spring (A).

A-Spring
B-Ball
C-Ball seat
D-Spring

E-Plug
F-Manifold
G-Spring pin

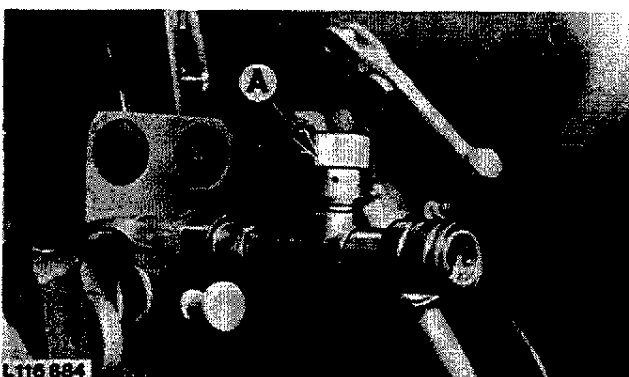


L115239

L115939-LB27005AE-010488

ADJUSTING FLOW CONTROL VALVE

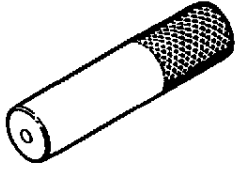
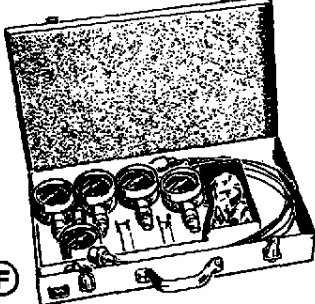
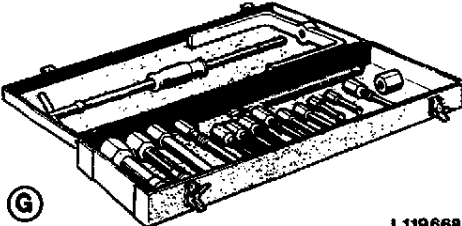
If unserviceable, replace complete valve assembly. Valve (A) must be set to at least 10 l/min. (2.5 gpm).



L116884

L116884-LB47005AE-010687

SPECIAL TOOLS

JT01616 OTC-27505  (A)	OTC-27487  (B)	JDH-39B  (C)
D-01227AA  (D)	FKM 10002  (F)	D-01061AA  (G)
OTC-27503  (E)		L119668

A-Installing pump shaft oil seal**
B-Driver

C-Removing and installing discharge valve seats
D-Adapter**

E-Installing needle bearing sleeves*

F-Pressure Tests
G-Removing discharge valve seats

* For 12 cm³ (0.7 cu. in.) and 23 cm³ (1.4 cu. in.) hydraulic pumps

** For 40 cm³ (2.4 cu. in.) hydraulic pumps

L119668-LB37010AE-010888

SPECIFICATIONS

12 cm³ (0.7 cu. in.) and 23 cm³ (1.4 cu.in.) HYDRAULIC PUMPS

Dimensions of New Parts

Stand-by pressure at slow idle speed	19000 kPa (190 bar; 2760 psi)
Pump shaft end play	
– Without through drive shaft	0.1 to 0.9 mm (0.004 to 0.035 in.)
– With through drive shaft	0.025 to 0.1 mm (0.001 to 0.004 in.)
Thickness of one thrust washer	2.21 to 2.31 mm (0.087 to 0.091 in.)
Diameter of pump shaft cam	37.77 to 37.79 mm (1.487 to 1.488 in.)
I.D. of cam race	45.72 to 45.75 mm (1.800 to 1.801 in.)
Inlet valve springs:	
– Spring tension at a length of 8 mm (0.31 in.)	1.5 to 1.8 N (0.3 to 0.4 lb)
Discharge valve springs:	
– Spring tension at a length of 7.5 mm (0.30 in.)	12 to 14 N (2.5 to 3.1 lb)
Crankcase outlet spring:	
– Spring tension at a length of 52 mm (2.05 in.)	200 to 240 N (44 to 54 lb)
Stroke control valve spring:	
– Spring tension at a length of 63.5 mm (2.5 in.)	710 to 850 N (160 to 190 lb)
Piston springs:	
– Spring tension at a length of 32 mm (1.26 in.)	80 to 100 N (18 to 22 lb)
Tension of springs must match within	7 N (1.5 lb)
Housing bore dia. for pistons	17.27 to 17.30 mm (0.680 to 0.681 in.)
O.D. of pistons	17.25 to 17.27 mm (0.679 to 0.680 in.)

HYDRPUMP-LB47010AE-000687

Hydraulic Pumps

40 cm³ (2.4 cu.in.) HYDRAULIC PUMP

Dimensions of New Parts

Stand-by pressure	19000 kPa (190 bar; 2760 psi)
Pump shaft end play	0.025 to 0.100 mm (0.001 to 0.004 in.)
Dia. of pump shaft cam	44.30 to 44.32 mm (1.74 to 1.75 in.)
I.D. of cam race	57.04 to 57.06 mm (2.24 to 2.25 in.)
Inlet valve lift	2.0 to 3.0 mm (0.08 to 0.12 in.)
Discharge valve springs – Spring tension at a length of 7.6 mm (0.30 in.)	11.3 to 14 N (2.5 to 3.1 lb)
Crankcase outlet valve spring – Spring tension at a length of 74.5 mm (3.0 in.)	63 to 77 N (14 to 17 lb)
Stroke control valve spring – Spring tension at a length of 84 mm (3.31 in.)	556 to 690 N (125 to 155 lb)
Piston springs – Spring tension at a length of 41 mm (1.62 in.)	
– Yellow springs	151 to 158 N (34.0 to 35.5 lb)
– Green springs	158 to 165 N (35.5 to 37.0 lb)
– Blue springs	165 to 171 N (37.0 to 38.5 lb)
– Red springs	171 to 178 N (38.5 to 40.0 lb)
Tension of springs must match within	7 N (1.5 lb)
Diameter of housing bores for pump pistons	22.223 to 22.233 mm (0.8749 to 0.8753 in.)
O.D. of pump pistons	22.20 to 22.21 mm (0.8740 to 0.8744 in.)
Thickness of shims between pump housing and cover	0.15 and 0.25 mm (0.006 and 0.010 in.)
O.D. of stroke control valve at upper end	6.759 to 6.769 mm (0.2661 to 0.2665 in.)
Max. unevenness of pump cover	0.08 mm (0.003 in.)

HYDRPUMP-LB37010BE-010267

TORQUES FOR HARDWARE

**12 cm³ (0.7 cu. in.) and 23 cm³
(1.4 cu.in.) HYDRAULIC PUMPS**

Piston bore plugs	125 Nm (90 ft-lb)
Inlet valve plugs in pump housing	70 Nm (50 ft-lb)
Outlet valve plugs in pumping housing	75 Nm (55 ft-lb)
Filter plug	125 Nm (90 ft-lb)
Stroke control valve plug	80 Nm (60 ft-lb)
Stroke control valve adjusting screw (lock nut)	60 Nm (45 ft-lb)
Pump cover to pump housing, cap screws:	
– First stage	20 Nm (14 ft-lb)
– Second stage	50 Nm (35 ft-lb)
Pump drive couplers, cap screws and special screws	50 Nm (35 ft-lb)
Pump drive to pump shaft, cap screws	50 Nm (35 ft-lb)
Pump drive shaft to pump shaft, hex. socket screws	120 Nm (85 ft-lb)
Damper to pump drive / vibration damper, hex. socket screws	140 Nm (100 ft-lb)
Hydraulic pump to front axle carrier, cap screws	120 Nm (85 ft-lb)

HYDRPUMP-LB37010FE-010888

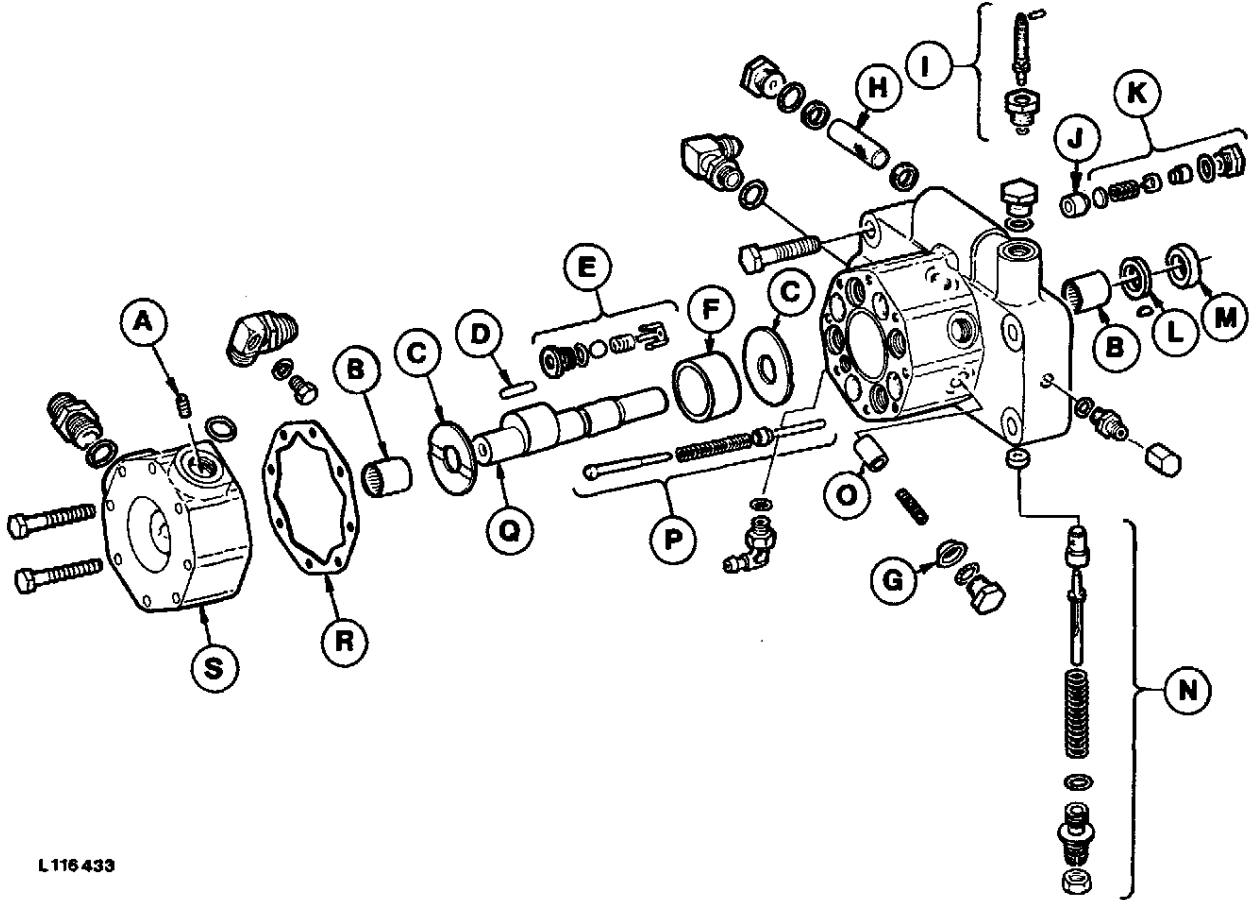
Hydraulic Pumps

40 cm³ (2.4 cu.in.) HYDRAULIC PUMP

Piston bore plugs	185 Nm (135 ft-lb)
Pump cover to pump housing, cap screws	120 Nm (85 ft-lb)
Pump drive couplers, cap screws and special screws	50 Nm (35 ft-lb)
Pump drive to pump shaft, cap screws	50 Nm (35 ft-lb)
Damper to pump drive / vibration damper, hex. socket screws	140 Nm (100 ft-lb)
Pump drive shaft to pump shaft, hex. socket screws	
– M14	70 Nm (50 ft-lb)
– M16	120 Nm (85 ft-lb)
Hydraulic pump to front axle carrier, cap screws	120 Nm (85 ft-lb)
Adjusting screw lock nut	60 Nm (45 ft-lb)

HYDRPUMP-LB27010CE-000488

**HYDRAULIC PUMPS (12 cm³/0.7 cu.in. and 23 cm³/1.4 cu.in.),
EXPLODED VIEW (Without Through Drive Shaft)**



L 116 433

A—Orifice plug
B—Needle bearing
C—Thrust washers
D—Bearing needles (33 used)
E—Inlet valve (8 used)*
F—Race

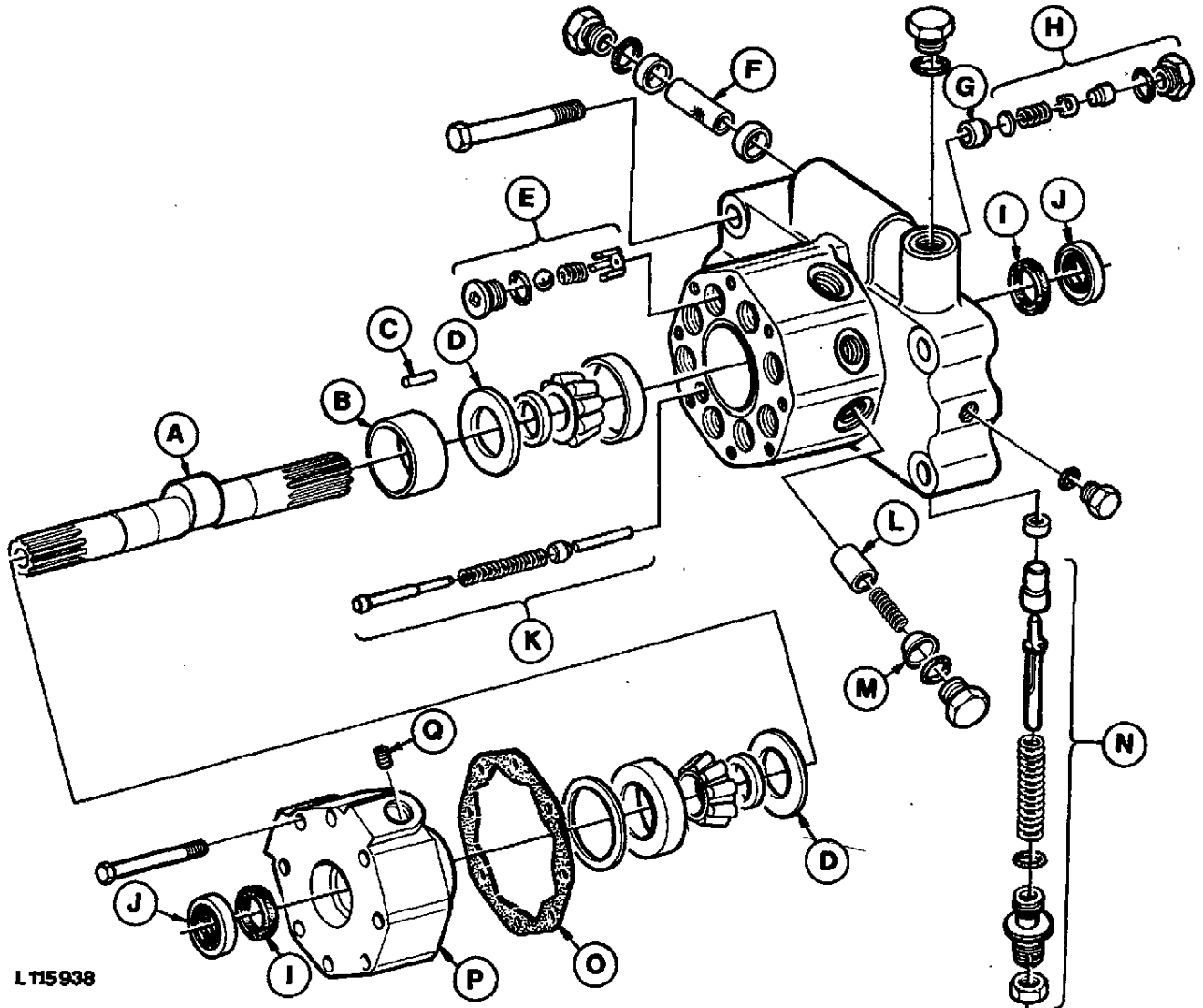
G—Protective sheath (8 used)*
H—Filter screen
I—Shut-off screw
J—Valve seat (8 used)*
K—Discharge valve (8 used)*
L—Seal ring

M—Oil seal
N—Stroke control valve
O—Piston (8 used)*
P—Crankcase outlet valve
Q—Pump shaft
R—Gasket
S—Pump cover

* 4 only on 12 cm³ (0.7 cu. in.) hydraulic pumps

L116433-LB47010AE-010687

**HYDRAULIC PUMP (23 cm³/1.4 cu.in.), EXPLODED VIEW
(With Through Drive Shaft)**



L115938

A—Pump shaft
B—Race
C—Bearing needles (33 used)
D—Thrust washer
E—Inlet valve (8 used)
F—Filter screen

G—Valve seat (8 used)
H—Discharge valve (8 used)
I—Seal ring
J—Oil seal
K—Crankcase outlet valve
L—Piston (8 used)

M—Protective sheath (8 used)
N—Stroke control valve
O—Gasket
P—Pump cover
Q—Orifice plug

L115938-LB47010AE-010687

REMOVING PUMP DRIVE

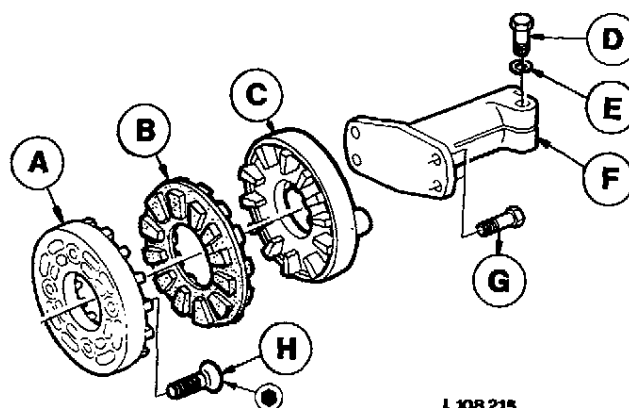
NOTE: It is necessary to remove the fuel tank before removing the hydraulic pump (see Section 30, Group 05).

Hydraulic Pumps Without Through Drive Shaft

Remove cap screws (G) and loosen cap screw (D).

Slide pump drive shaft (F) forward and rotate one-half turn. Remove carrier (B) and front coupler (C).

Remove pump drive shaft.



L 108 215

- A—Rear coupler
- B—Carrier
- C—Front coupler
- D—Cap screw
- E—Snap ring
- F—Pump drive shaft
- G—Cap screw (4 used)
- H—Special screw (4 used)

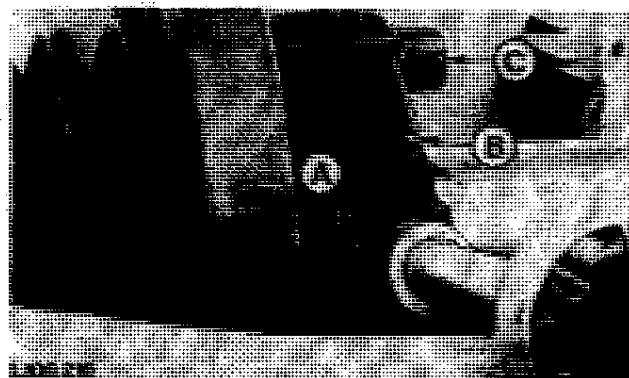
L108215-LB27010AE-000488

Hydraulic Pumps With Through Drive Shaft

Remove radiator (see Section 20, Group 05).

Remove front PTO (see Section 10, Group 25).

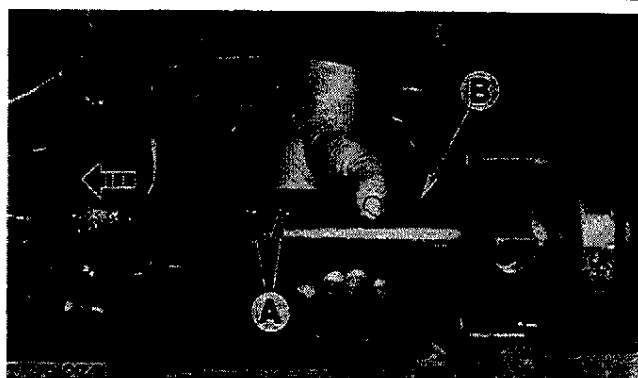
Remove the three hex. socket screws (A and C) of damper (B).



L108216-LB27010AE-000488

Loosen the four cap screws of hydraulic pump.

Loosen screws (A), then press hydraulic pump slightly forward and remove pump drive shaft (B).



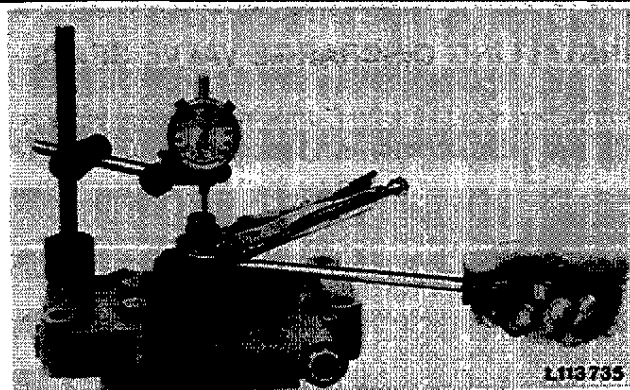
L118274-LB27010AE-000488

CHECKING PUMP SHAFT END PLAY

Maximum permissible pump shaft end play:

Without through drive shaft:
0.1 to 0.9 mm (0.004 to 0.035 in.)

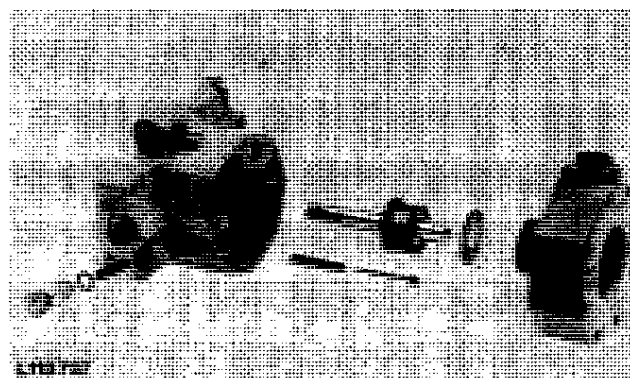
With through drive shaft:
0.025 to 0.1 mm (0.001 to 0.004 in.)



L113735-LB47010AE-000687

DISASSEMBLING HYDRAULIC PUMP

NOTE: Mark bores and parts so that they can be re-installed in their original bores.

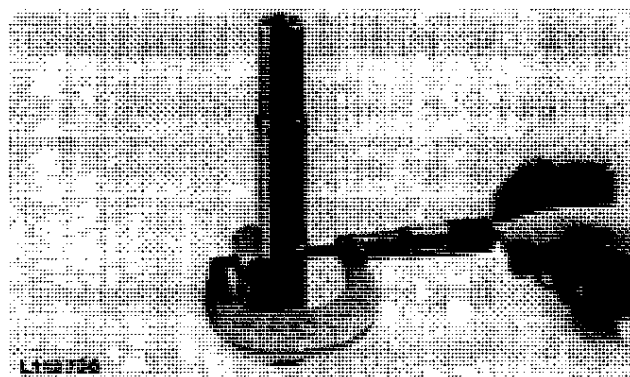


L113737-LB27010AE-010886

CHECKING PUMP SHAFT

Diameter of pump shaft cam:
37.77 to 37.79 mm (1.487 to 1.488 in.)

Inner diameter of cam race:
45.72 to 45.75 mm (1.800 to 1.801 in.)



L113736-LB27010AE-010886

REMOVING DISCHARGE VALVE SEATS

Extract discharge valve seats using collet JT01726* (A), actuator pin JT01721* (B) and slide hammer* (C).

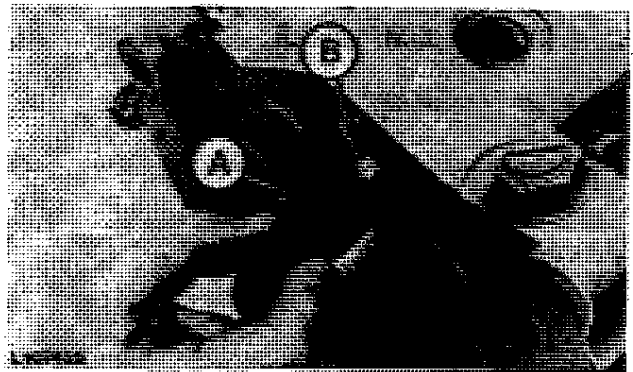
*Part of blind-hole puller set D-01061AA.



L115933-LB37010AE-010287

INSTALLING DISCHARGE VALVE SEATS

With chamfered side first, drive in discharge valve seat (B) to bottom of bore, using special tool JDH-39-1 (A).



L107428-LB27010AE-010886

CHECKING DRAIN PASSAGES

Check drain passages (see arrows) for free flow.

NOTE: Partial sectional view of pump cover shown.

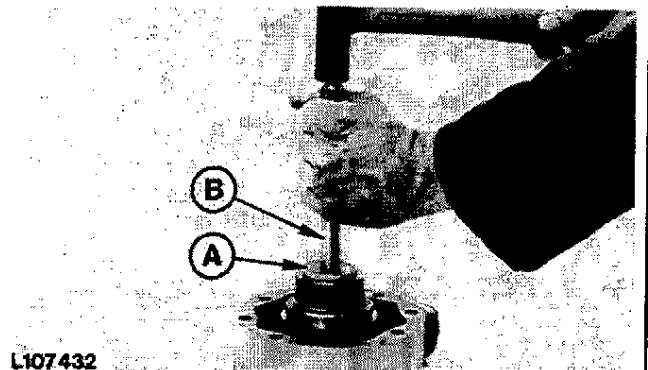


L107431-LB27010AE-010886

INSTALLING PUMP SHAFT BEARINGS

Install pump shaft bearings in pump housing and pump cover using driver disk OTC-27503* (A) and driver handle OTC-27487* (B).

* Part of bushing, bearing and seal driver tool set D-01045AA.

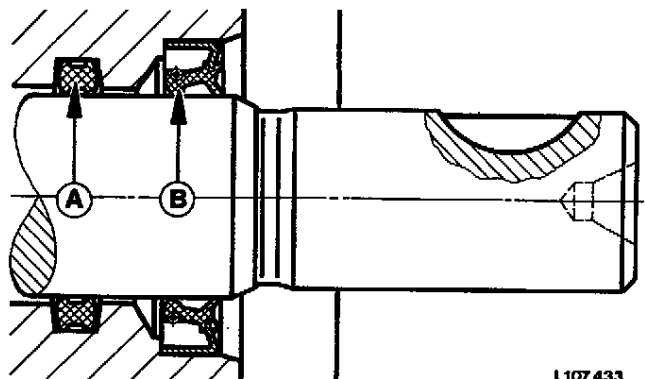


L107432

L107432-LB27010AE-010886

INSTALLING PUMP SHAFT SEAL RINGS

Insert inner seal ring (A) in housing. With sealing lip ahead, drive in outer oil seal (B) up to inner housing chamfer.



L107433

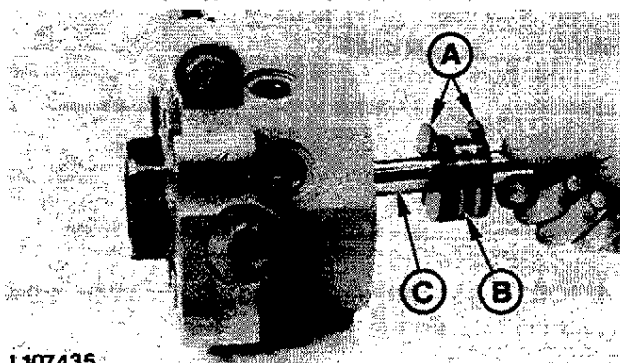
L107433-LB27010AE-010886

INSTALLING PUMP SHAFT

Hydraulic Pumps Without Through Drive Shaft

Place race (B) with 33 bearing needles on cam of pump shaft (C).

Oil grooves of both thrust washers (A) must face outwards.



L107435

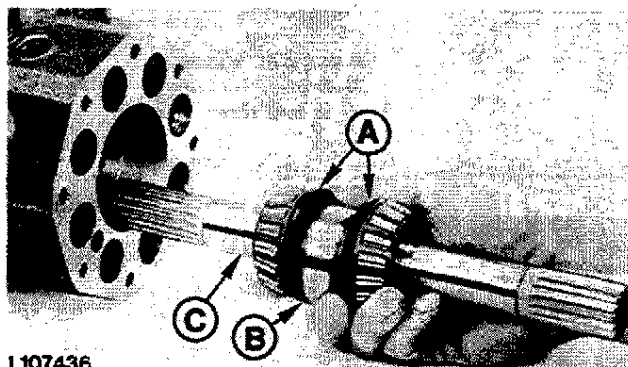
L107435-LB47010AE-010687

Hydraulic Pumps With Through Drive

Place race (B) with 33 bearing needles on cam of pump shaft (C).

Oil grooves of both thrust washers (A) must face outwards.

NOTE: Install pump shaft with longer splines facing forward. Protect pump shaft seals by wrapping plastic film around shaft splines.



L107436

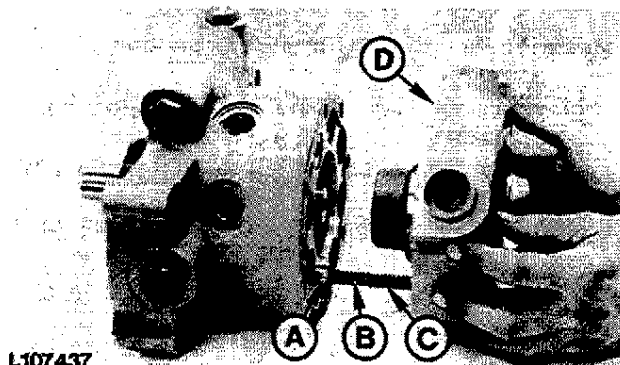
L107436-LB37010AE-010888

FITTING PUMP COVER

Fit pump cover (D) with crankcase outlet valve (A) and valve pin (in housing), as well as spring (B) with spring guide (C).

Torques for attaching screws:

1st stage: 20 Nm (14 ft-lb)
2nd stage: 50 Nm (35 ft-lb)



L107437

L107437-LB27010AE-010886

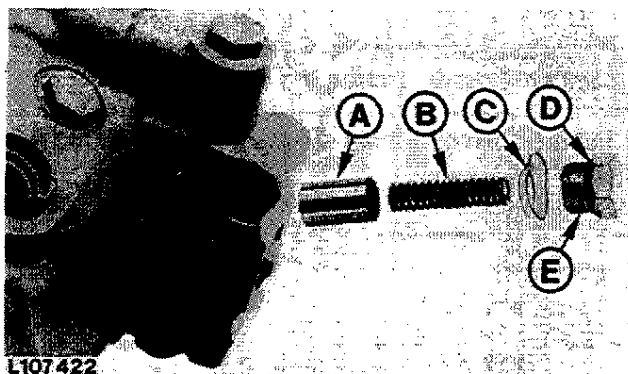
INSTALLING PUMP PISTONS

IMPORTANT: Install plug (E), O-ring (D) and protective sheath (C) oil-free.

Tighten plug to 125 Nm (90 ft-lb).

A-Piston
B-Spring
C-Protective sheath

D-O-ring
E-Plug



L107422

L107422-LB27010AE-010886

INSTALLING PUMP DRIVE

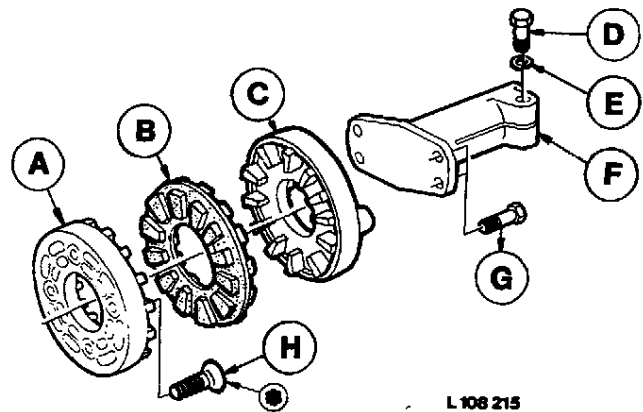
Hydraulic Pumps Without Through Drive Shaft

Coat special screws (H) with LOCTITE No. 242 (L41475).

Tighten screws (D, G and H) to 50 Nm (35 ft-lb).

IMPORTANT: There must be no axial tension in the pump drive.

- A—Rear coupler
- B—Carrier
- C—Front coupler
- D—Cap screw
- E—Snap ring
- F—Pump drive shaft
- G—Cap screw (4 used)
- H—Special screw (4 used)



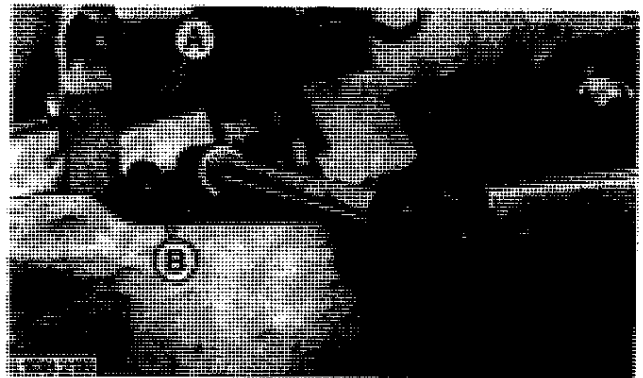
L108215-LB47010AE-010687

Hydraulic Pumps With Through Drive Shaft

Slide pump drive (A) onto pump shaft up to stop.

Tighten hex. socket screws (B) to 120 Nm (85 ft-lb).

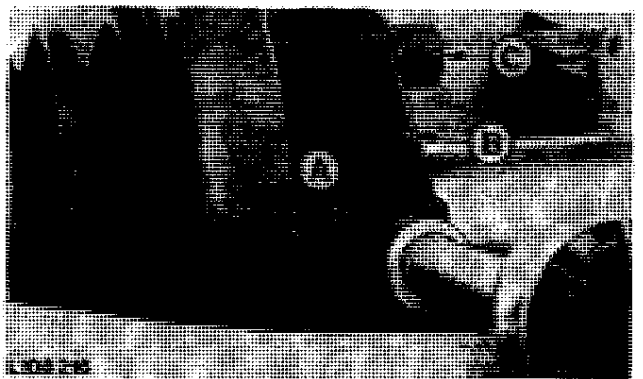
Tighten hydraulic pump cap screws to 120 Nm (85 ft-lb).



L108218-LB27010AE-000488

For installation of hex. socket screws (C), compress damper (B) using a clamping band.

Tighten the hex. socket screws (A and C) to 140 Nm (100 ft-lb).



L108216-LA77010BE-261184

INSTALLING HYDRAULIC PUMP

Tighten cap screws (A) to 120 Nm (85 ft-lb).



L108225-LA77010AE-2611B4

FINAL ASSEMBLY

Install fuel tank, see Section 30, Group 05.

Hydraulic Pumps With Through Drive Shaft

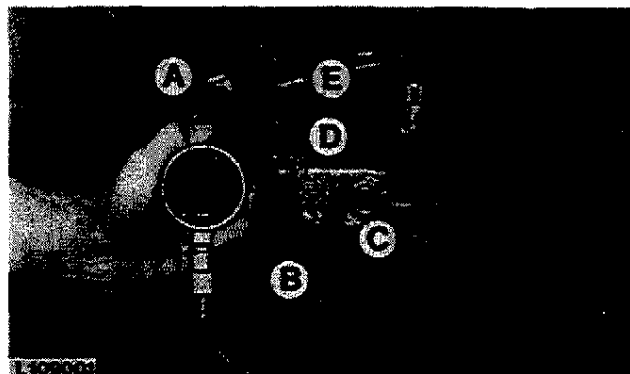
Install front PTO (see Section 10, Group 25).

Install radiator, see Section 20, Group 05.

HYDRPUMP-LB27010DE-000488

ADJUSTING HYDRAULIC PUMP

- A—Pressure gauge FKM10207
- B—Connector FKM10302
- C—High pressure hose FKM10209
- D—Connector JT05494
- E—Adapter FKM10303



L109001-LB27010AE-010886

ADJUSTING HYDRAULIC PUMP (CONTD.)

Hydraulic equipment and transmission in neutral position.

Apply handbrake.

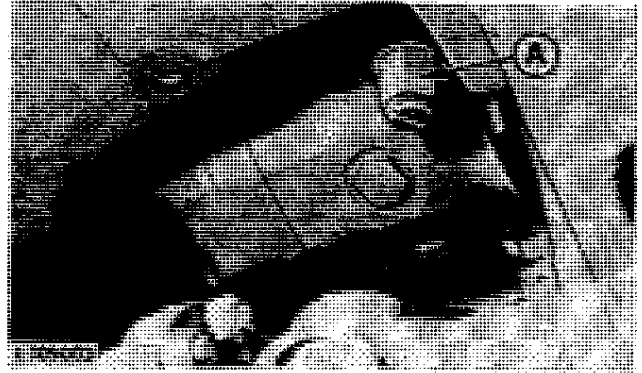
Run engine at 2000 rpm.

Loosen adjusting screw (A) until spring pressure can no longer be felt.

Turn in adjusting screw until system pressure of 19000 kPa (190 bar; 2760 psi) has been reached.

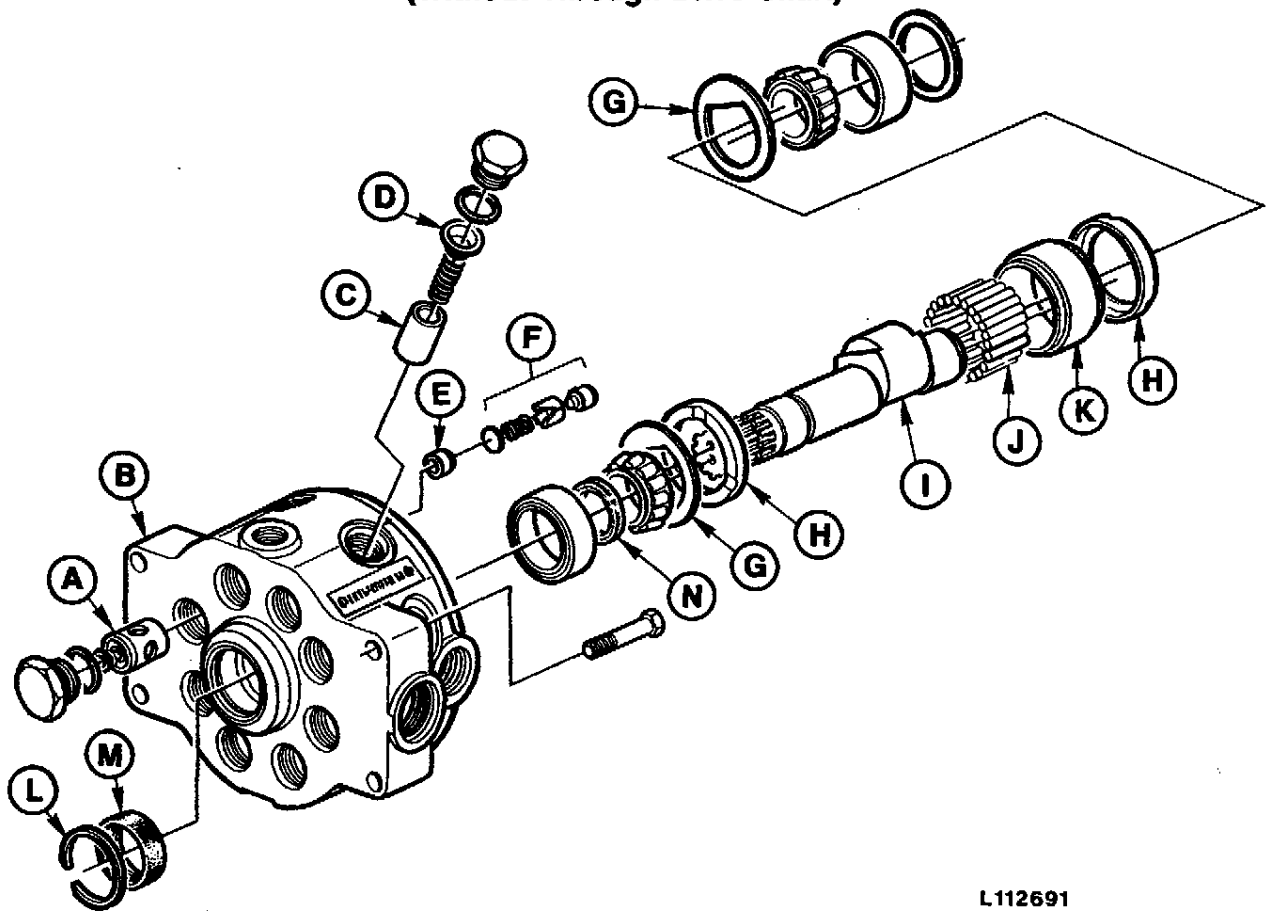
Tighten adjusting screw lock nut to 60 Nm (45 ft-lb).

Run engine for 5 to 10 minutes and check adjustment again.



L109003-LB37010AE-010287

**HYDRAULIC PUMP (40 cm³; 2.4 cu.in.), EXPLODED VIEW
(Without Through Drive Shaft)**



L112691

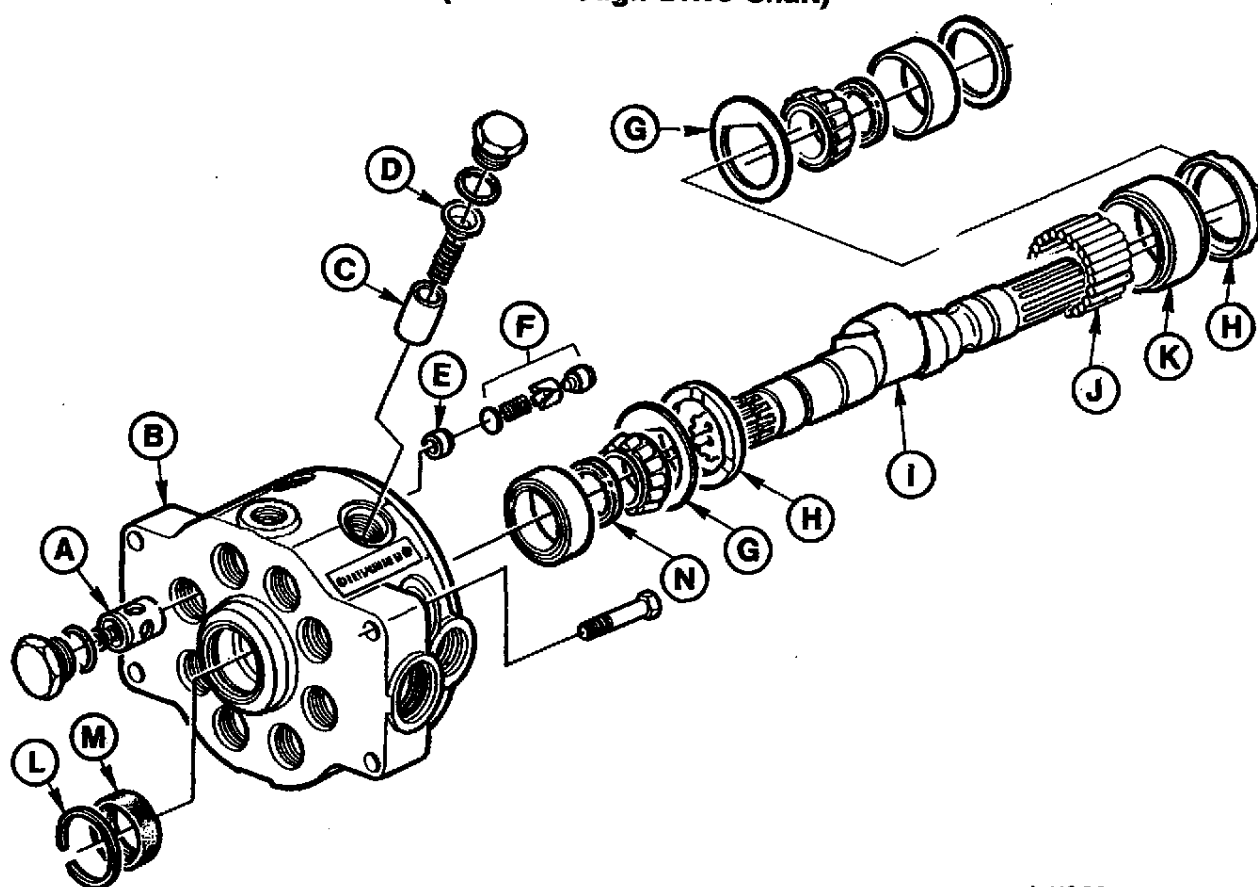
A-Inlet valve (8 used)
B-Pump housing
C-Piston (8 used)
D-Protective sheath (8 used)
E-Valve seat (8 used)

F-Discharge valve (8 used)
G-Thrust washers
H-Thrust washers
I-Pump shaft
J-Bearing needles (25 used)

K-Race
L-Snap ring
M-Oil seal
N-Seal ring

L112691-LB27010AE-000488

**HYDRAULIC PUMP (40 cm³; 2.4 cu.in.), EXPLODED VIEW
(With Through Drive Shaft)**



L 112 800

A-Inlet valve (8 used)
B-Pump housing
C-Piston (8 used)
D-Protective sheath (8 used)
E-Valve seat (8 used)

F-Discharge valve (8 used)
G-Thrust washers
H-Thrust washers
I-Pump shaft
J-Bearing needles (25 used)

K-Race
L-Snap ring
M-Oil seal
N-Seal ring

L112800-LB27010AE-000488

REMOVING PUMP DRIVE

NOTE: It is necessary to remove the fuel tank before removing the hydraulic pump (see Section 30, Group 05).

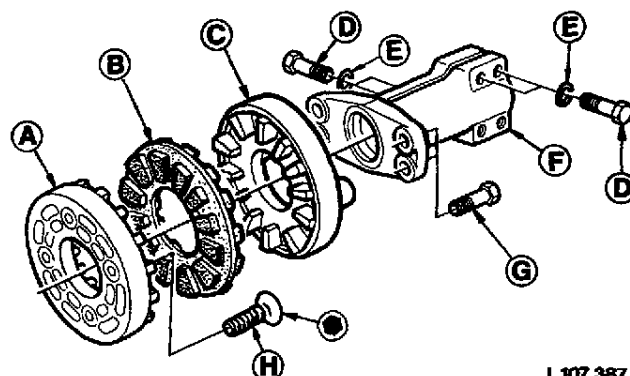
Hydraulic Pumps Without Through Drive Shaft

Remove cap screws (G) and loosen cap screw (D).

Slide pump drive shaft (F) forward and rotate one-half turn. Remove carrier (B) and front coupler (C).

Remove pump drive shaft.

- A—Rear coupler
- B—Carrier
- C—Front coupler
- D—Cap screw (4 used)
- E—Snap ring
- F—Pump drive shaft
- G—Cap screw (4 used)
- H—Special screw (4 used)



L107 387

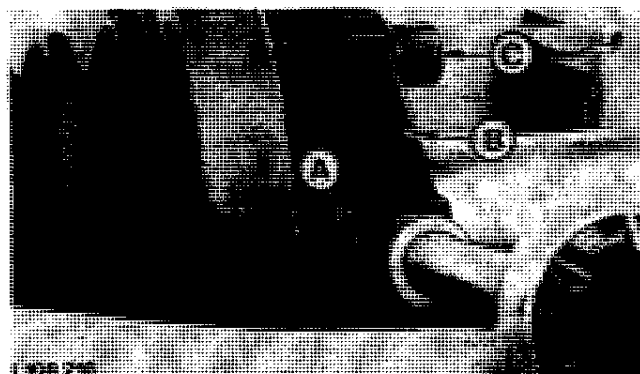
L107387-LB27010AE-000488

Hydraulic Pumps With Through Drive Shaft

Remove radiator (see Section 20, Group 05).

Remove front PTO (see Section 10, Group 25).

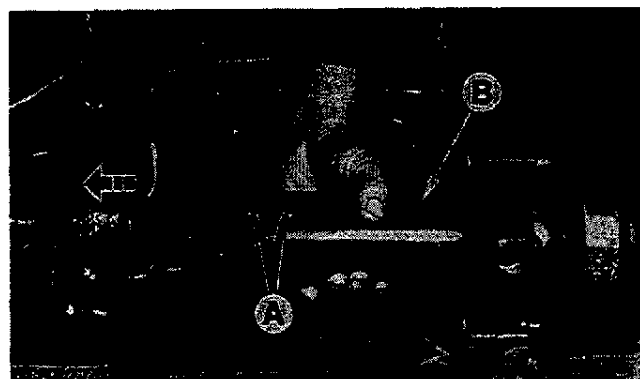
Remove the three hex. socket screws (A and C) of damper (B).



L108216-LB27010AE-000488

Loosen the four cap screws of hydraulic pump.

Loosen screws (A), then press hydraulic pump slightly forward front and remove pump drive shaft (B).

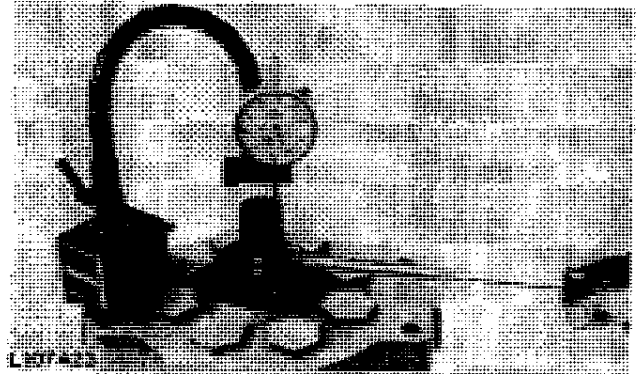


L119274-LB27010AE-000488

CHECKING PUMP SHAFT END PLAY

Maximum permissible pump shaft end play:

0.025 to 0.1 mm (0.001 to 0.004 in.)

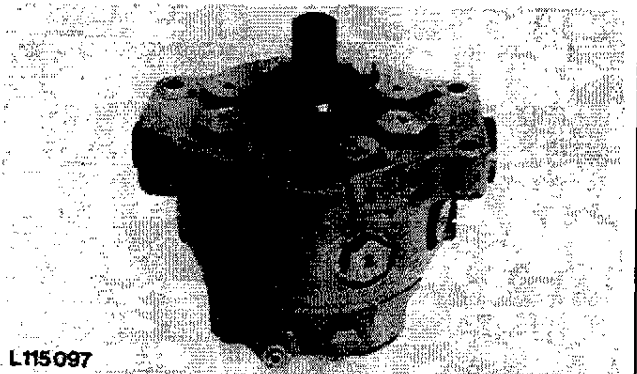


L107423-LB27010AE-010886

DISASSEMBLING HYDRAULIC PUMP

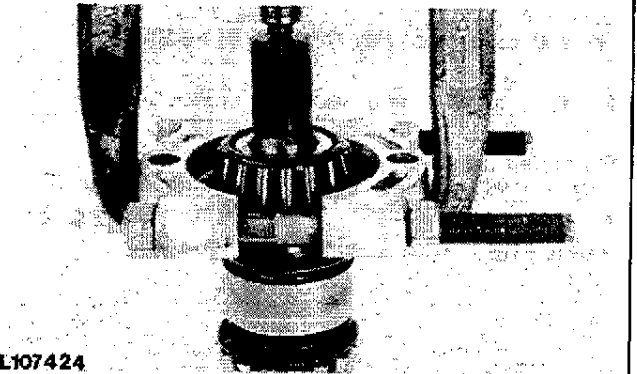
Remove pump cover and pistons before removing the pump shaft.

NOTE: Mark bores and parts so that they can be re-installed in their original bores.



L115097-LB27010AE-010886

REMOVING TAPER ROLLER BEARINGS



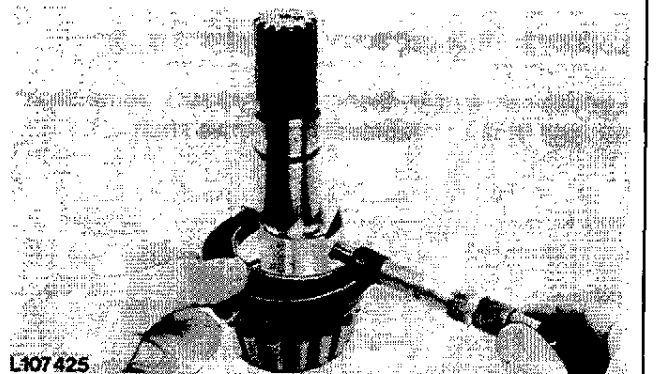
L107424

L107424-LB27010AE-010886

CHECKING PUMP SHAFT

Diameter of pump shaft cam:
44.30 to 44.32 mm (1.74 to 1.75 in.)

Inner diameter of cam race:
57.04 to 57.06 mm (2.24 to 2.25 in.)

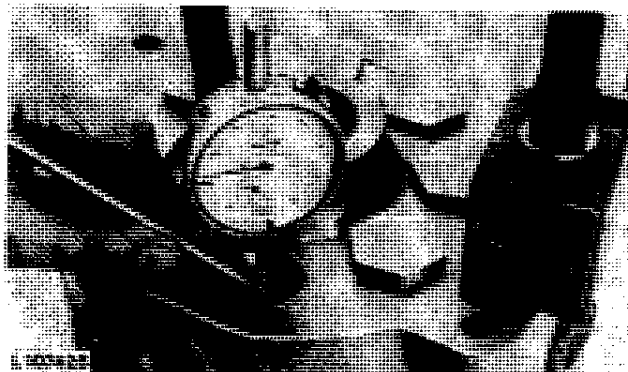


L107425

L107425-LB27010AE-010886

CHECKING INLET VALVES

Stroke of inlet valves:
2.0 to 3.0 mm (0.08 to 0.12 in.)



L107426-LB37010AE-010287

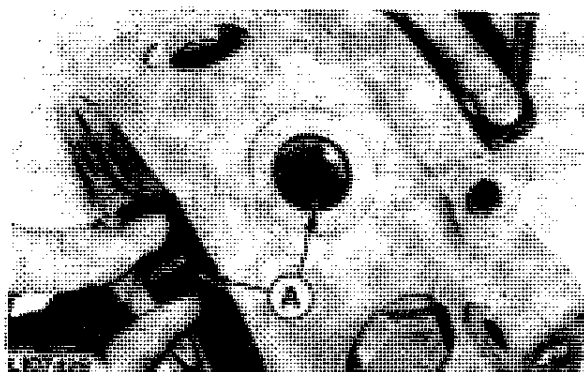
REMOVING DISCHARGE VALVE SEATS

Extract discharge valve seats, using special tool JDH-39B-1 (A).

Use slide hammer* and adapter D-01227AA**

* Is part of tool set D-01061AA

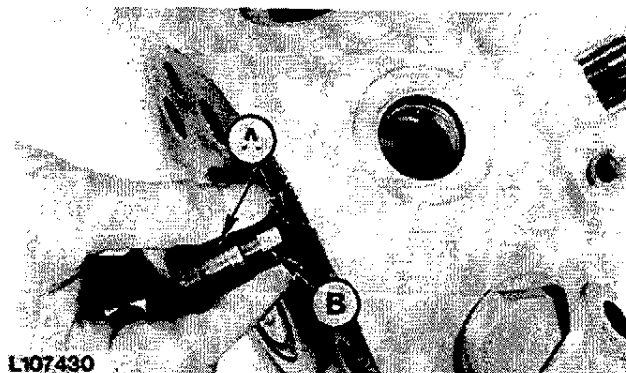
** Is part of tool set D-01048AA



L107429-LB37010AE-010287

INSTALLING DISCHARGE VALVE SEATS

With chamfered side first, drive discharge valve seat (B) into housing until special tool JDH-39B-1 (A) is flush against housing.



L107430

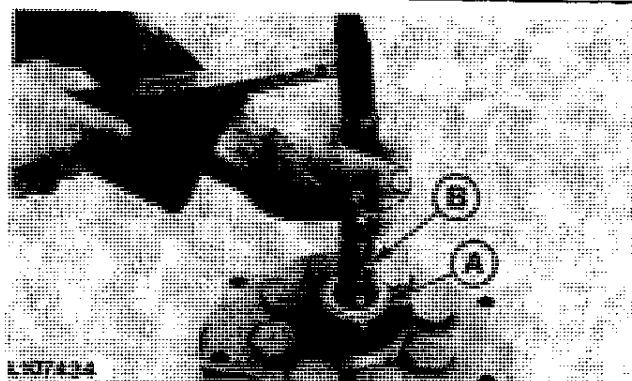
L107430-LA77010AE-261184

INSTALLING PUMP SHAFT OIL SEAL

Using disks JT0-1616* (A) and OTC-27505* and driver handle OTC-27487* (B), drive in oil seal (printed side outward) only until snap ring can be installed in its groove.

IMPORTANT: Driving in further will close the relief bore.

* Part of bushing, bearing and seal driver set D-01045AA



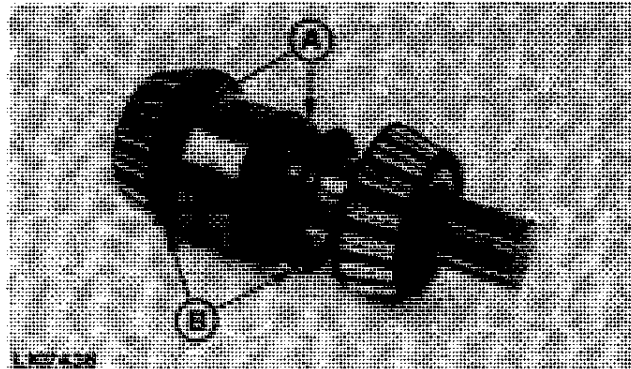
L107434

L107434-LB37010AE-000287

ASSEMBLING PUMP SHAFT

Always use new thrust washers (A and B) for assembly.

Insert 25 bearing needles.



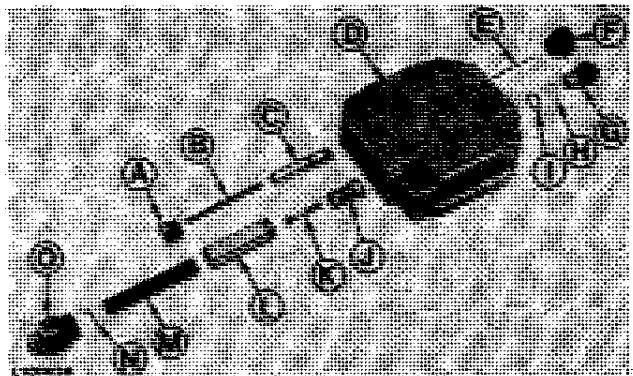
L107438-LB27010AE-010488

PUMP COVER, EXPLODED VIEW

Hydraulic Pumps Without Through Drive Shaft

IMPORTANT: Adjusting screw (O) must be removed before removing plug (G). Assemble in reverse order.

- | | |
|--------------------------|------------------------|
| A-Plug | H-Back-up ring |
| B-Spring | I-O-ring |
| C-Crankcase outlet valve | J-Valve sleeve |
| D-Pump cover | K-Stroke control valve |
| E-Valve pin | L-Spring guide |
| F-Plug | M-Spring |
| G-Plug | N-Washer |
| | O-Adjusting screw |



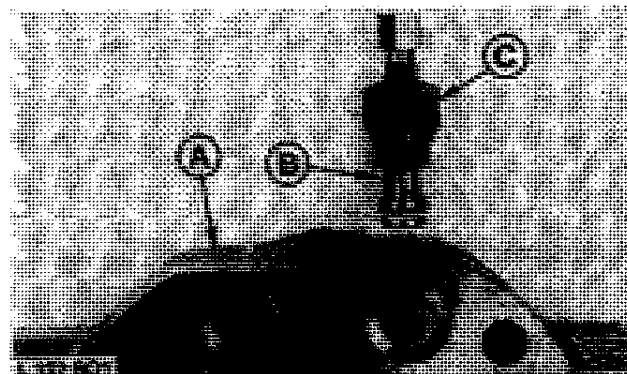
L107439-LB27010AE-000488

REPLACING SHUT-OFF VALVE

Hydraulic Pumps With Through Drive Shaft

To disassemble, grooved pin (B) must be removed.

- A-Pump cover
B-Grooved pin
C-Shut-off valve



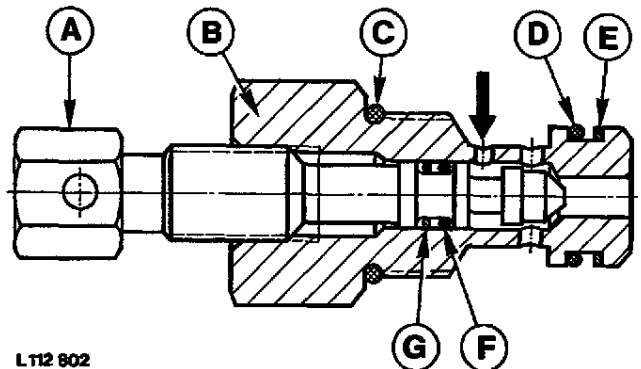
L112801-LB27010AE-000488

ASSEMBLING SHUT-OFF VALVE

Having assembled the shut-off valve, drive grooved pin into bore (see arrow).

A—Special screw
B—Bushling
C—O-ring
D—O-ring

E—Back-up ring
F—O-ring
G—Back-up ring



L 112 802

L112802-LB27010AE-010888

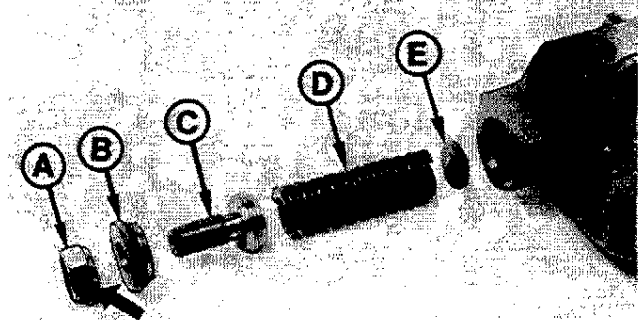
REMOVING ADJUSTING SCREW

On Earlier Tractor Series

Loosen hex. nut (A), then remove adjusting screw (C). The sealing side of hex. nut (A) must face inwards (see arrow).

A—Hex. nut
B—Bushling
C—Adjusting screw

D—Spring
E—Spring guide



L 112 803

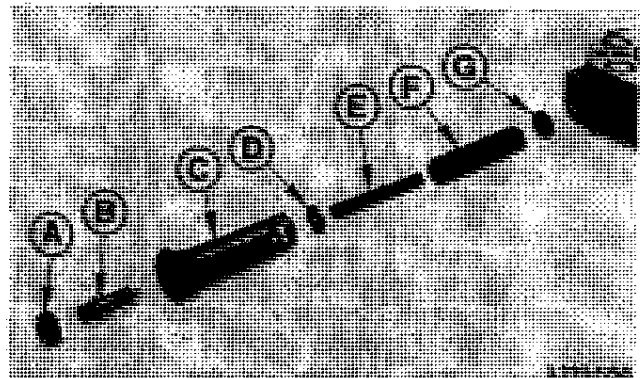
L112803-LB37010AE-010888

On Later Tractor Series

Loosen hex. nut (A), then remove adjusting screw (B). Remove sleeve (C), then remove inner spring (E) and outer spring (F).

A—Hex. nut
B—Adjusting screw
C—Sleeve
D—Thrust washer

E—Inner spring
F—Outer spring
G—Spring guide



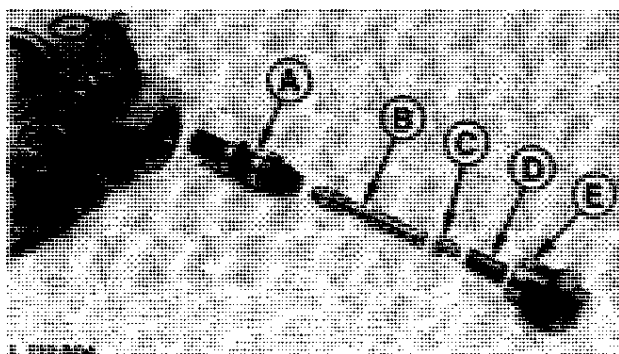
L119656-LB37010AE-010888

REMOVING CRANKCASE OUTLET VALVE AND STROKE CONTROL VALVE

NOTE: Before removing crankcase outlet valve and stroke control valve, the adjusting screw on the opposite side must be removed.

- | | |
|--------------------------|----------|
| A—Crankcase outlet valve | C—Valve |
| B—Stroke control valve | D—Spring |
| | E—Plug |

Drive out crankcase outlet valve (A) from the opposite side, using a 19 mm (3/4 in.) dia. pin.



L112804-LB27010AE-010886

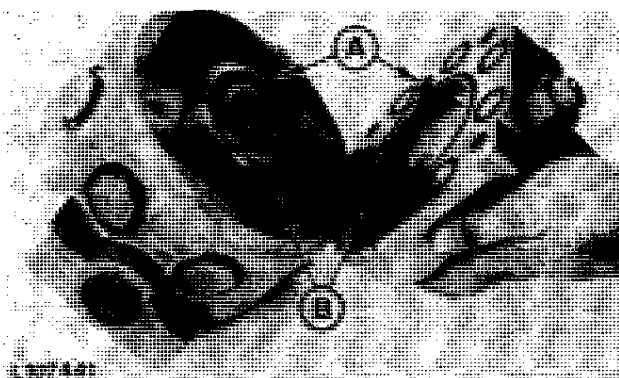
INSTALLING PUMP COVER



CAUTION: DO NOT INSTALL a current design (with serial no.) pump stroke control valve housing on an early design (without serial no.) pump or an early design stroke control valve housing (without serial no.) on a current design (with serial no.) pump. The mounting holes are common, but the **HIGH PRESSURE PASSAGES WILL NOT ALIGN**. Failure to align the high pressure passages will keep the pump in full stroke. This could result in hydraulic damage and possibly a high pressure leak which could create a risk of personal injury.

Make sure oil passages (A and B) are aligned. Tighten cover cap screws to 120 Nm (85 ft-lb).

Pump shaft end play:
0.025 to 0.10 mm (0.001 to 0.004 in.)



L107441-LB37010AE-010287

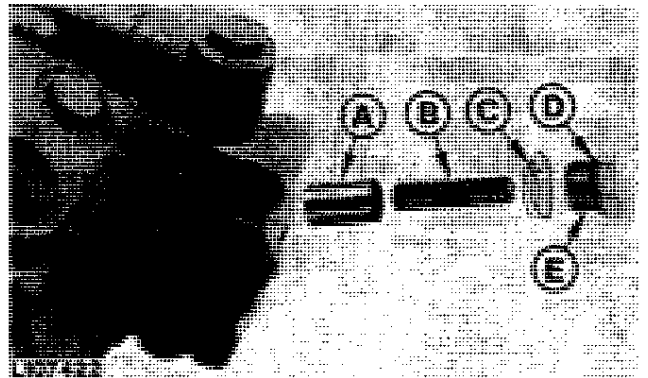
INSTALLING PUMP PISTONS

IMPORTANT: Install plug (E), O-ring (D) and protective sheath (C) oil-free.

Tighten plug to 185 Nm (135 ft-lb).

A-Piston
B-Spring
C-Protective sheath

D-O-ring
E-Plug



L107422-LB37010AE-010287

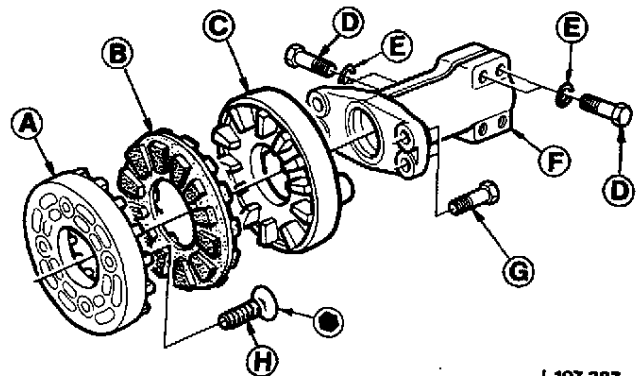
INSTALLING PUMP DRIVE

Hydraulic Pumps Without Through Drive Shaft

Tighten screws (D, G and H) to 50 Nm (35 ft-lb).

A-Rear coupler
B-Carrier
C-Front coupler
D-Cap screw (4 used)
E-Snap ring (4 used)
F-Pump drive shaft
G-Cap screw (4 used)
H-Special screw (4 used)

IMPORTANT: There must be no axial tension in the pump drive.



L 107 387

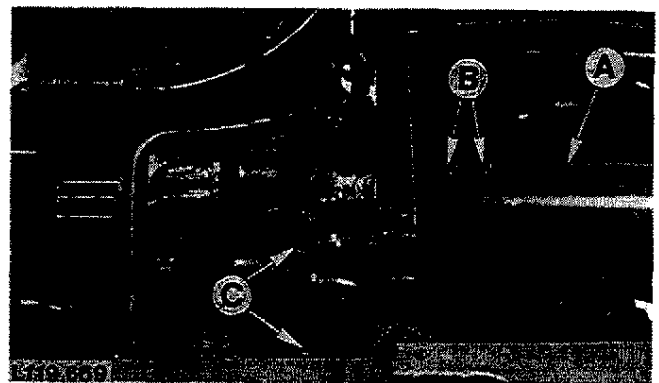
L107387-LB27010AE-000488

Hydraulic Pumps With Through Drive Shaft

Slide pump drive (A) onto pump shaft up to stop.

Tighten M14 hex. socket screws (B) to 70 Nm (50 ft-lb) and M16 hex. socket screws to 120 Nm (85 ft-lb).

Tighten the hydraulic pump cap screws (C) to 120 Nm (85 ft-lb).

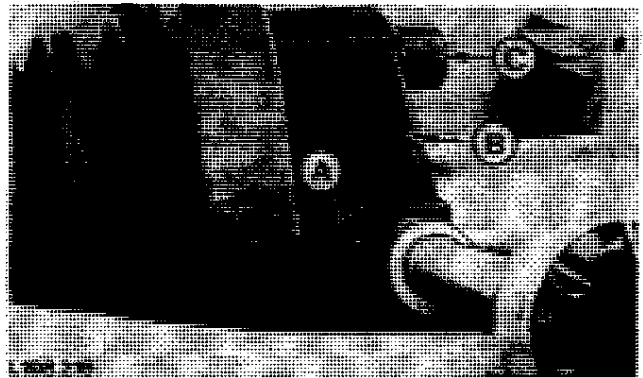


L119669-LB27010AE-000488

Hydraulic Pumps

For installation of hex. socket screws (C), compress damper (B) using a clamping band.

Tighten the hex. socket screws (A and C) to 140 Nm (100 ft-lb).



L108216-LA77010BE-001184

INSTALLING HYDRAULIC PUMP

Tighten cap screws (A) to 120 Nm (85 ft-lb).



L119276-LB27010AE-010488

FINAL ASSEMBLY

Install fuel tank, see Section 30, Group 05.

Hydraulic Pumps With Through Drive Shaft

Install front PTO, see Section 10, Group 25.

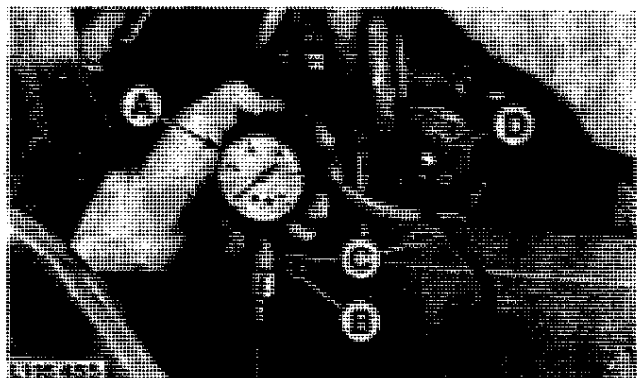
Install radiator, see Section 20, Group 05.

HYDRPUMP-LB27010EE-000488

ADJUSTING HYDRAULIC PUMP

Hydraulic Pumps With Through Drive Shaft

- A—Pressure gauge FKM10207
- B—Connector FKM10302
- C—High pressure hose FKM10209
- D—Adapter KJD10152

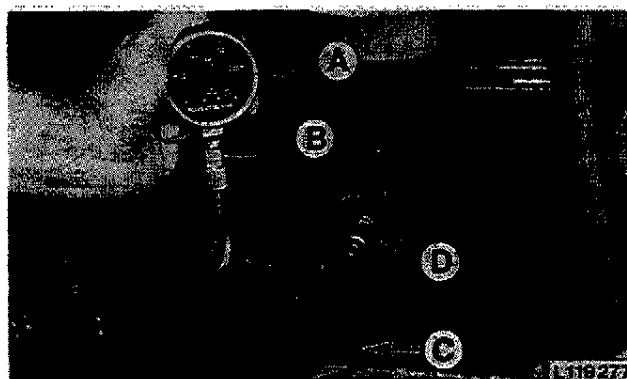


L116455-LB27010AE-000488

Hydraulic Pumps

Hydraulic Pumps Without Through Drive Shaft

- A—Pressure gauge FKM10207
- B—Connector FKM10302
- C—Connector JT05490
- D—Adapter FKM10303
- E—High pressure hose FKM10209



L119277-LB27010AE-010488

Hydraulic equipment and transmission in neutral position.

Apply handbrake.

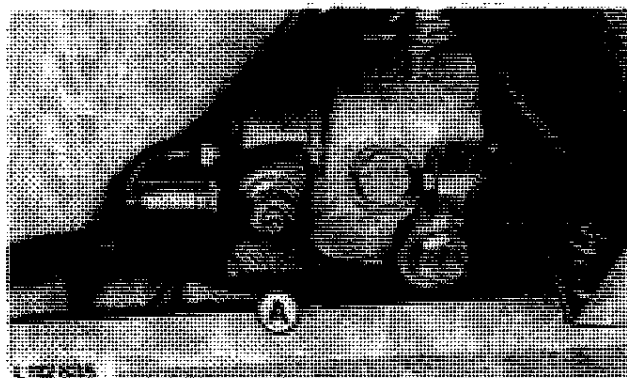
Run engine at 2000 rpm.

Loosen adjusting screw (A) until spring pressure can no longer be felt.

Turn in adjusting screw until system pressure of 19000 kPa (190 bar; 2760 psi) has been reached.

Tighten adjusting screw lock nut to 60 Nm (45 ft-lb).

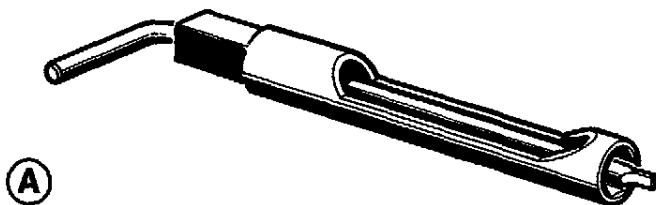
Run engine for 5 to 10 minutes and check adjustment again.



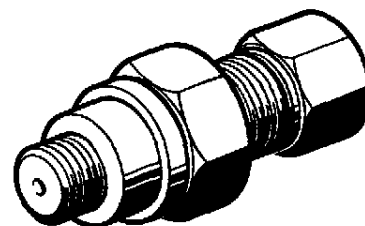
L109003,L112835-LB37010AE-010287

SPECIAL TOOLS

JDG 402



KJD 10 130



L110215

A—Adjusting rockshaft

B—Removing surge relief valve

L110215-LA77015AE-250185

SPECIFICATIONS

Springs of pressure and discharge valves

– Spring tension at a length of 23 mm (0.91 in.) 43 to 51 N (10 to 11.5 lb)

Check valve spring

– Spring tension at a length of 19 mm (0.75 in.) 18 to 21 N (4 to 4.7 lb)

Spring of flow control valve

– Spring tension at a length of 20 mm (0.79 in.) 55 to 65 N (11.7 to 14.3 lb)

Return spring of rockshaft cylinder linkage

– Spring tension at a length of 156 mm (6.14 in.) 65 to 79 N (15 to 18 lb)

Maximum permissible settling rate of lift links, full load on rockshaft, within 15 minutes (engine shut off) measured at center of draft link hitch balls 64 mm (2.5 in.)

REGELHYD-LB27015AE-010886

SPECIFICATIONS (CONTD.)

Turn in control arm negative stop screw until
it contacts arm, then back off 1/3 to 1/2 a turn

ADJUSTING VALVE CLEARANCE

At start of lift stroke, turn adjusting screw
clockwise by 1/4 turn

Control lever play between raising and lowering:

– With SG2 cab 12 to 15 mm (0.5 to 0.6 in.)

– With MC1 cab up to Tractor
Serial No. 637 600L* 4 to 10 mm (0.16 to 0.4 in.)

– With MC1 cab from Tractor
Serial No. 637 601L* 12 to 15 mm (0.5 to 0.6 in.)

– Without cab* 2 to 4 mm (0.08 to 0.16 in.)

– With narrow tread tractors* 3 to 6 mm (0.12 to 0.24 in.)

ADJUSTING ROCKSHAFT CONTROL LEVER

– With SG2 cab
Front edge of control lever in position 7 to 7.5

– With MC1 cab
Up to Tractor Serial No. 637 600L
Clearance from front end position to front edge
of control lever* 10 + 6 mm (0.4 + 0.24 in.)

– With MC1 cab
From Tractor Serial No. 637 601L
Front edge of control lever in position 7 to 7.5

– Without cab
Clearance from front end position to front edge
of control lever* 12 + 1/– 2 mm (0.47 + 0.04/– 0.08 in.)

– With narrow tread tractors 15 + 10/– 5 mm (0.6 + 0.4/– 0.2 in.)

* Measured at upper edge of quadrant

SPECIFICATIONS (CONTD.)**ADJUSTING COMMENCEMENT OF LIFT
WITH LOAD CONTROL**

- With SG2 cab
Front edge of rockshaft control lever
in position 2 to 2.5
- With MC1 cab up to Tractor Serial No. 637 600L
Clearance from rear end position to
rear edge of control lever* 45 + 6 mm (1.8 + 0.24 in.)
- With MC1 cab from Tractor Serial No. 637 601L
Front edge of rockshaft control lever
in position 2 to 2.5
- Without cab
Clearance from rear end position to
rear edge of control lever* 50 ± 3 mm (2 ± 0.12 in.)
- With narrow tread tractors 90 + 10/- 5 mm (3.54 + 0.4/- 0.2 in.)

ADJUSTING REMOTE CONTROL

- With SG2 cab
Front edge of rockshaft control lever
in position 3.2 to 3.5
- With MC1 cab up to Tractor Serial No. 637 600L
Clearance from rear end position to
rear edge of control lever* 60 to 70 mm (2.36 to 2.76 in.)
- With MC1 cab from Tractor Serial No. 637 601L
Front edge of rockshaft control lever
in position 3.2 to 3.5

DRAFT LINKS

- Play between draft links and bushing 2.5 to 3.7 mm (0.10 to 0.14 in.)

* Measured at upper edge of quadrant

TORQUES FOR HARDWARE

Rockshaft cylinder with valve housing to rockshaft housing, cap screws	70 Nm (50 ft-lb)
Lift arms to rockshaft, cap screws	120 Nm (85 ft-lb)
Cam to rockshaft, cap screw	15 Nm (10 ft-lb)
Bearing block of load control shaft to transmission case, cap screws	230 Nm (170 ft-lb)

Tractors With Increased Lifting Capacity

Sway blocks to transmission case:	
- Top and bottom cap screws	650 Nm (480 ft-lb)
- Lower cap screw	115 Nm (80 ft-lb)

REGELHYD-LBS7015BE-000287

Rockshaft

PREPARATORY WORK

Remove rockshaft (see Section 10, Group 25).

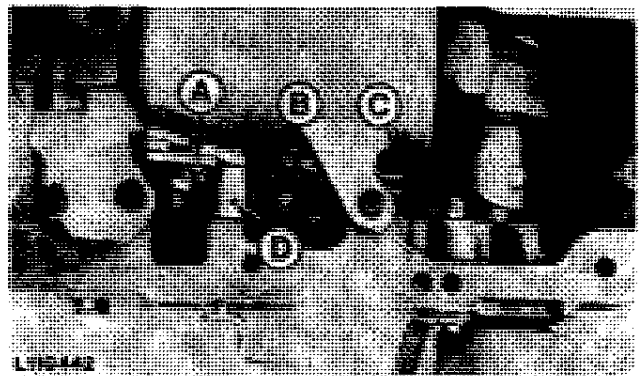
REGELHYD-LB47015DE-010687

REMOVING ROCKSHAFT CYLINDER LINKAGE

Drive out spring pin (D) and remove snap ring (A).

A-Snap ring
B-Spring

C-Rockshaft cylinder linkage
D-Spring pin



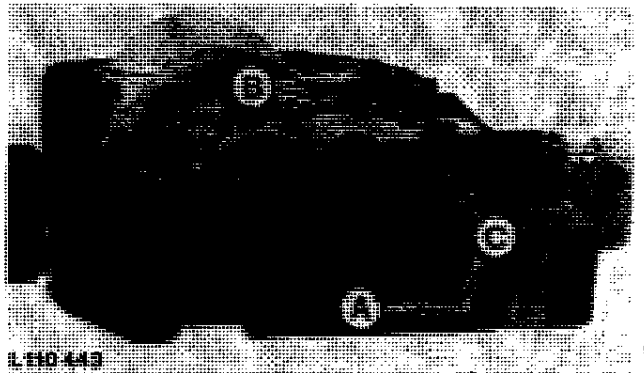
L110442-LB37015AE-010287

REMOVING ROCKSHAFT CYLINDER

Remove outer cap screw (A) and four securing screws (B).

Lift out rockshaft cylinder (C).

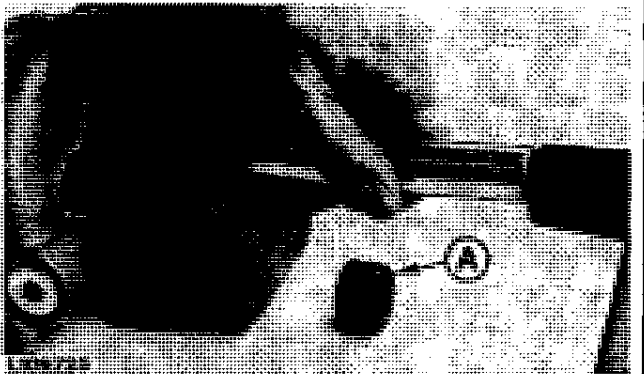
NOTE: Do not lose rate-of-drop valve ball as it is now free.



L110443-LB37015AE-010287

REMOVING ROCKSHAFT PISTON

Pull out rockshaft piston or drive out from opposite side after removing plug (A).



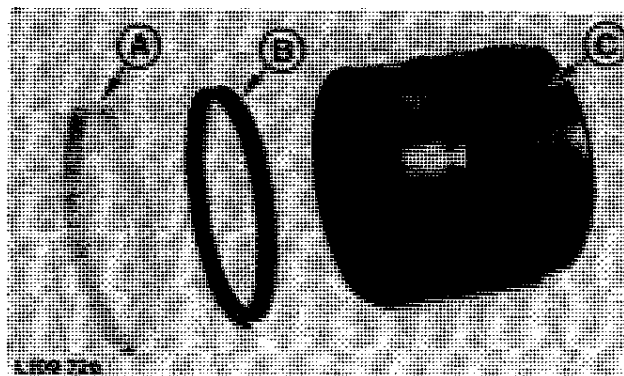
L109725-LA77015AE-000185

INSTALLING SET OF SEALS

Insert pressure ring (B) into piston groove.

Install seal ring (A).

NOTE: Before installing piston (C), wait for 10 minutes until seal ring (A) has contracted.



L109726-LB37015AE-010888

REPLACING PRESSURE AND DISCHARGE VALVES

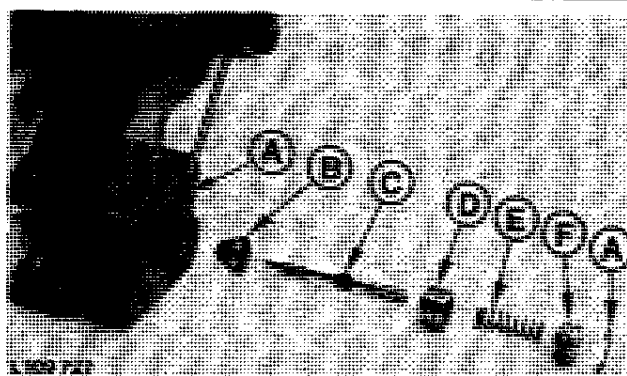
Remove snap ring (A) and valve (B to F).

Check spring (E).

Spring tension at a length of 23 mm (0.91 in.):
43 to 51 N (10 to 11.5 lb).

A-Snap ring
B-Valve seat
C-Valve body

D-Damping sleeve
E-Spring
F-Plug

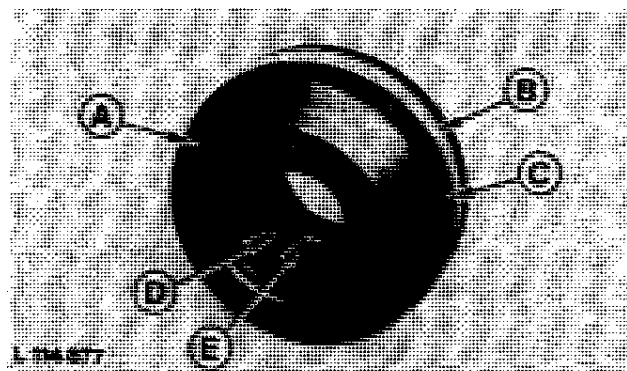


L109727-LA77015AE-250185

Install new seal rings on plug (A).

A-Plug
B-Back-up ring
C-O-ring

D-O-ring
E-Back-up ring



L114877-LB37015AE-000287

REPLACING PRESSURE RELIEF VALVE*

Refer to Technical Manual "Operation and Tests",
Section 270, for checking of valve.

* Rockshaft pistons with 92 mm (3.67 in.) diameter
only.



L114590-LB37015AE-000287

REMOVING SURGE RELIEF VALVE*

Should valve remain in rockshaft cylinder, remove valve using special tool KJD10130 (A).

Hold with open-ended spanner (B) and screw out valve with spanner (C).

* Only rockshaft pistons with 100 mm (3.94 in.) diameter.



L107221-LB37015AE-010287

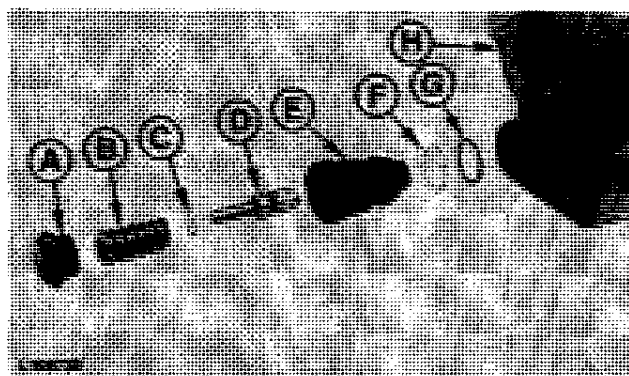
INSTALLING SURGE RELIEF VALVE

Insert O-ring (G) and back-up ring (F) into rockshaft cylinder (H).

NOTE: Check valve (refer to Section 270, Group 15 "Operation and Tests").

A-End plug
B-Spring
C-Washer
D-Valve body

E-Valve sleeve
F-Back-up ring
G-O-ring
H-Rockshaft cylinder



L109729-LB37015AE-010287

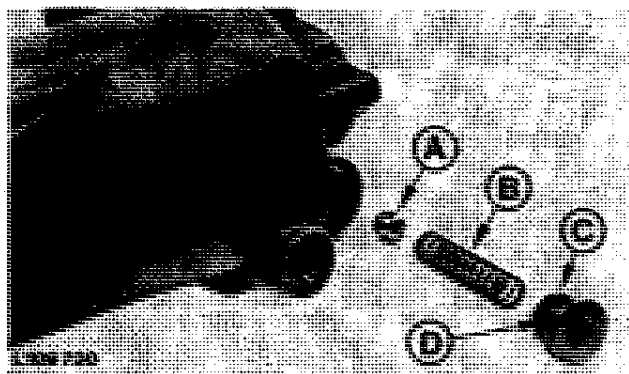
REPLACING CHECK VALVE

Check spring (B).

Spring tension at a length of 19 mm (0.75 in.):
18 to 21 N (4 to 4.7 lb)

A-Ball
B-Spring

C-End plug
D-O-ring



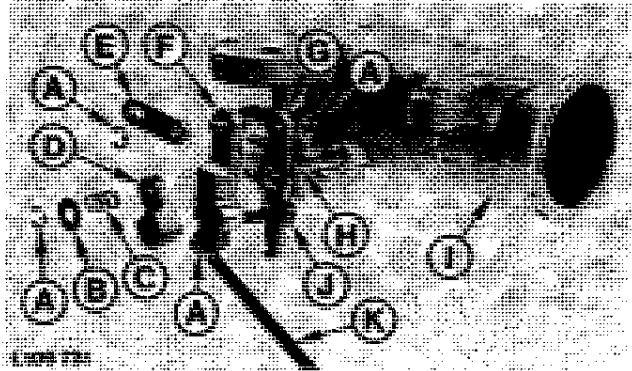
L109730-LA77015AE-250185

INSTALLING ROCKSHAFT CYLINDER AND VALVE LINKAGE

Simultaneously screw adjusting screw (J) into lever (F) and special nut (D) until there is a visible clearance (approximately 1 turn) between lever and nut.

A-Snap rings
B-Washer
C-Spring
D-Special nut
E-Link plate
F-Lever

G-Valve control lever
H-Hinged pin
I-Rockshaft cylinder
J-Adjusting screw
K-Shut-off rod



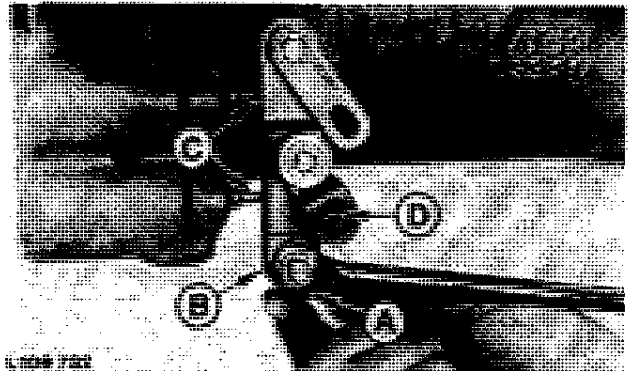
L109731-LB37015AE-010888

ADJUSTING VALVE CONTROL LEVER

Position valve control lever (A) against valve pins (C) without play by means of adjusting screw (D).

A-Valve control lever
B-Lever

C-Valve pins
D-Adjusting screw



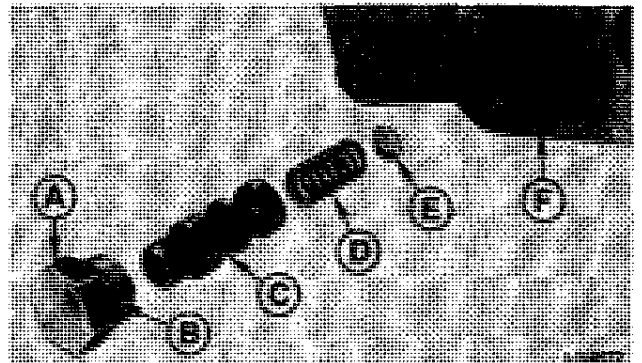
L109732-LB37015AE-010888

REPLACING FLOW CONTROL VALVE

Check spring (D).
Spring tension at a length of 20 mm (0.79 in.):
55 to 65 N (11.7 to 14.3 lb).

A-Plug
B-O-ring
C-Valve

D-Spring
E-Washers
F-Rockshaft housing



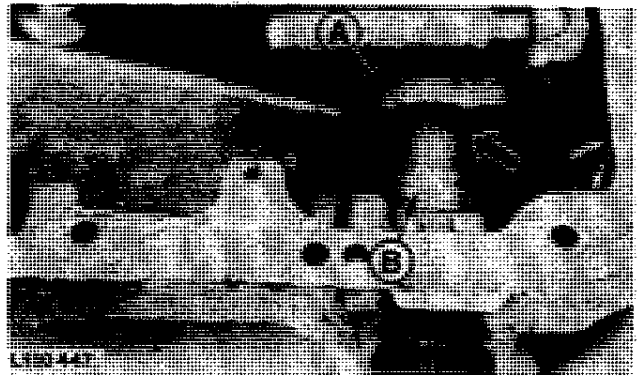
L110572-LB37015AE-010888

Rockshaft

INSTALLING ROCKSHAFT

Install rockshaft (B) without bearing bushings into rockshaft housing, thereby sliding crank arm (A) onto shaft.

NOTE: Make sure when assembling that thick splined section is aligned with corresponding groove in lift arms.

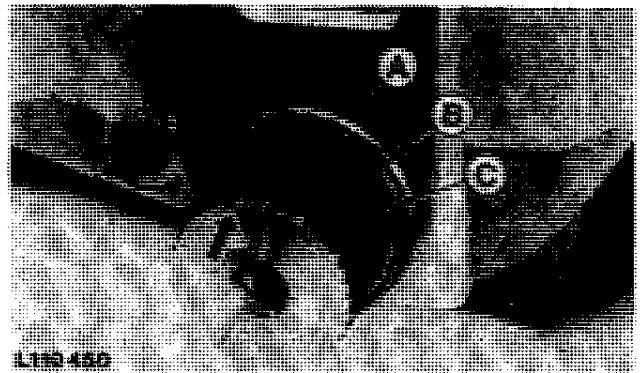


L110447-LB37015AE-000267

REPLACING BEARING BUSHINGS

Install bearing bushing (A).
Press O-ring (B) between rockshaft and housing.
Install back-up ring (C) with open side facing outwards.

NOTE: Arrow shows thick splined section of rockshaft.



L110450-LB37015AE-010287

INSTALLING LIFT ARMS

Slide lift arms (B) onto rockshaft.

NOTE: Make sure when assembling that thick splined section is aligned with corresponding groove in lift arms.

Tighten cap screw (A) to 120 Nm (85 ft-lb).



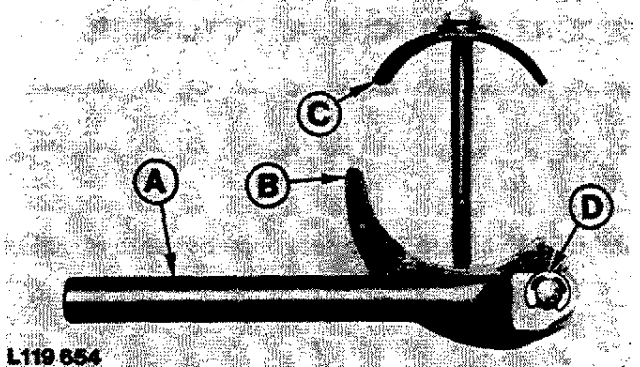
L110451-LB37015AE-000287

PREASSEMBLING ROCKSHAFT CAM

NOTE: The rockshaft cam is illustrated in installed position.

A-Tube
B-Rockshaft cam

C-Spacer
D-Snap ring



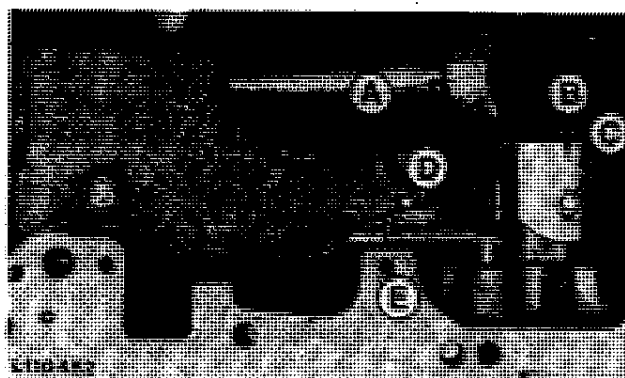
L119854-LB37015AE-010888

ALIGNING CRANK ARM

Install rockshaft cam (D) and spacer (B). Slide crank arm (A) against rockshaft housing. Install spacer (B) against crank arm and tighten cap screw (C) to 15 Nm (10 ft-lb). Install shaft (E).

A—Crank arm
B—Spacer
C—Cap screw

D—Cam
E—Shaft

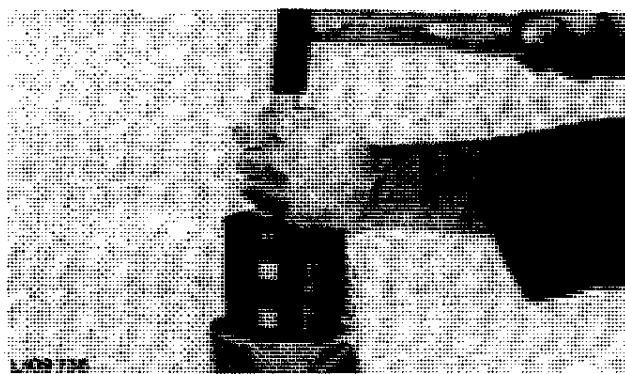


L110452-LB37015AE-010287

INSTALLING ROCKSHAFT PISTON

Compress seal rings of rockshaft piston using a piston ring compressor.

Install rockshaft piston in cylinder.



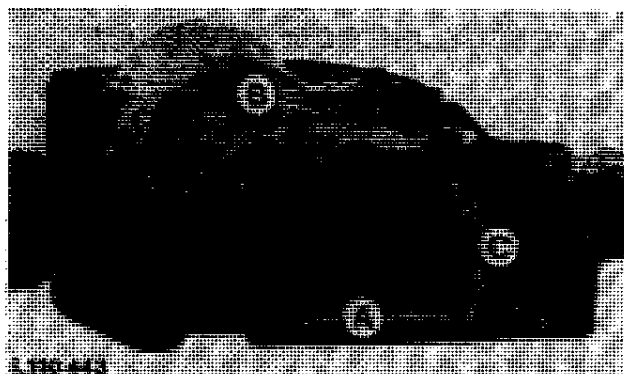
L109736-LA77015AE-000185

INSTALLING ROCKSHAFT CYLINDER

When installing rockshaft cylinder, slide shut-off rod into tube.

Tighten cap screw (A), and then securing screw (B) to 70 Nm (50 ft-lb).

IMPORTANT: Insert two seal rings between rockshaft cylinder and rockshaft housing.



L110443-LB37015AE-010888

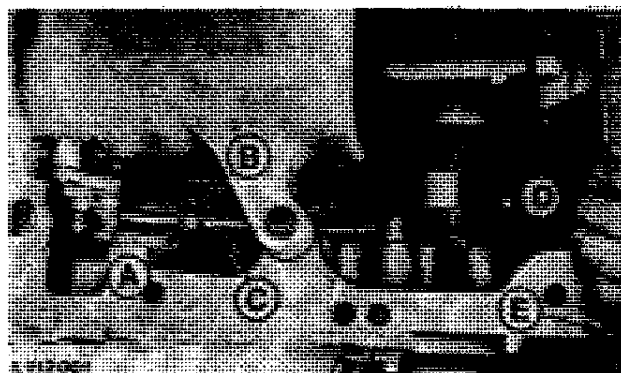
Rockshaft

ADJUSTING LIFT LIMIT

Before adjusting lift limit, adjust valve operating lever. Clamp a 2 to 3 mm (0.08 to 0.12 in.) thick strip of sheet metal (E) between crank arm (D) and rockshaft housing. Slide clamp (B) onto tube (C), clamp and tighten lock nut.

A—Adjusting screw
B—Clamp
C—Tube

D—Crank arm
E—Metal strip



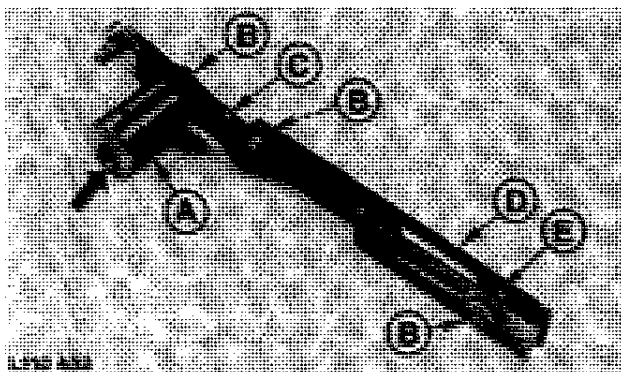
L112001-LB37015AE-01088

PREASSEMBLING ROCKSHAFT CYLINDER LINKAGE

NOTE: Pivot shaft (A) is shown in installed position, i.e. the bore (arrow) faces downward. Roller (E) must turn easily.

A—Pivot shaft
B—Snap rings

C—Lever
D—Cylinder linkage
E—Roller



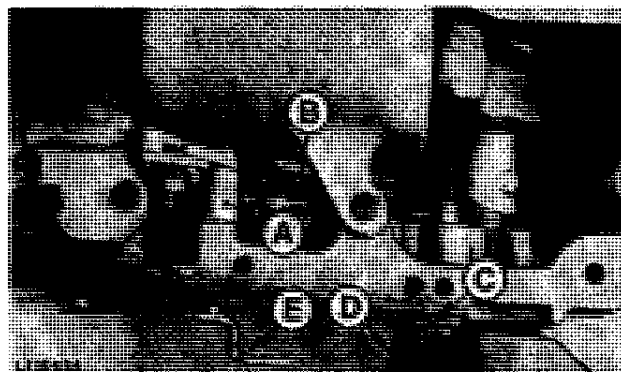
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INSTALLING ROCKSHAFT CYLINDER LINKAGE

Install rockshaft cylinder linkage so that the pin of selector lever shaft (D) engages in slot of rockshaft linkage. Carefully drive in spring pin (A). Hook in spring (B) last.

A—Spring pin
B—Spring
C—Stop pin

D—Selector lever shaft
E—Control lever shaft



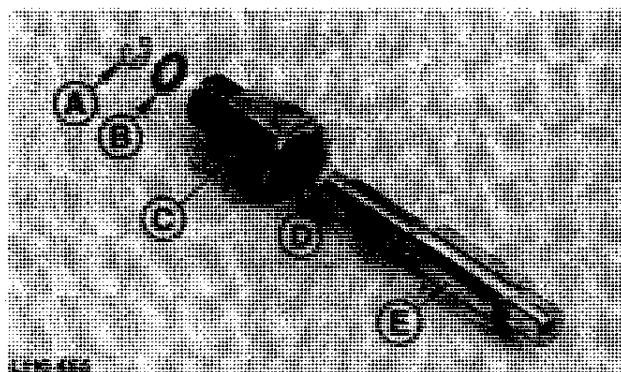
L110454-LB37015AE-010287

ASSEMBLING RATE-OF-DROP SCREW

Install O-ring (D) in groove of special nut (C).

A—Snap ring
B—Washer
C—Special nut

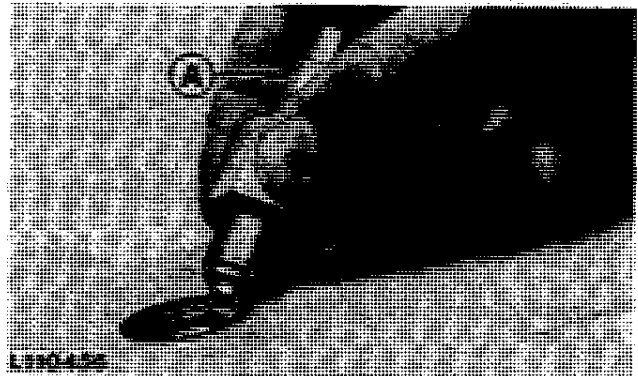
D—O-ring
E—Special screw



L110455-LB37015AE-010287

INSTALLING RATE-OF-DROP SCREW

Insert ball.
Special screw (A) must be turned out before screwing in rate-of-drop screw.



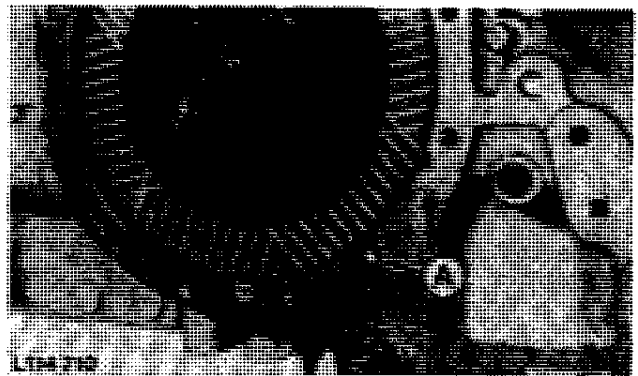
L110456-LB37015AE-000287

REPLACING LOAD CONTROL ARM

Remove left-hand final drive assembly, see Section 10, Group 25.

Pull out bearing pin (A) and remove load control arm.

On tractors with synchronized transmission, secure cover of ring gear with bearing pin when installing.



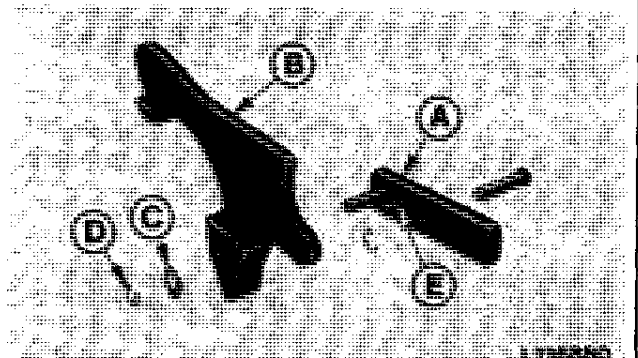
L114710-LB37015AE-010888

REPLACING CAM FOLLOWER

Preassemble cam follower.

A-Link
B-Cam follower
C-Washer

D-Snap ring
E-Spring pin



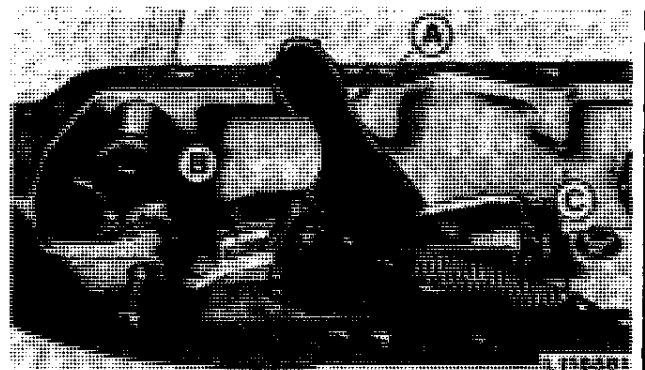
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INSTALLING CAM FOLLOWER

Attach cam follower (B) to load control arm (A).
Hook in return spring (C).

Install rockshaft housing, see Section 10, Group 25.

IMPORTANT: Observe specified torques for hardware.



L116881-LB37015AE-010888

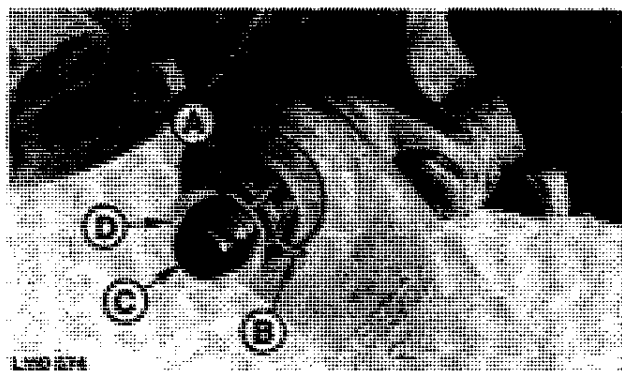
REPLACING LOAD CONTROL SHAFT

Remove snap ring (B) and bolt (A). On opposite side of tractor pull out load control shaft (C).

When necessary, establish clearance of 2.5 to 3.7 mm (0.10 to 0.14 in.) during installation by inserting shims between draft link and bushing (D).

A-Bolt
B-Snap ring

C-Load control shaft
D-Bushing



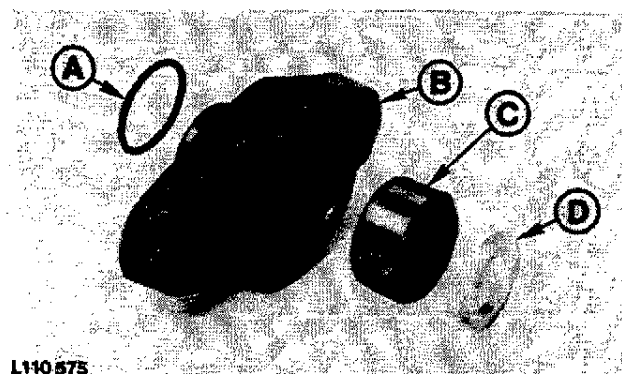
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REPLACING BEARING BUSHING

A-O-ring*
B-Bearing block*

C-Bushing
D-Oil seal (1 or 2 used)

* On tractors with increased lifting capacity

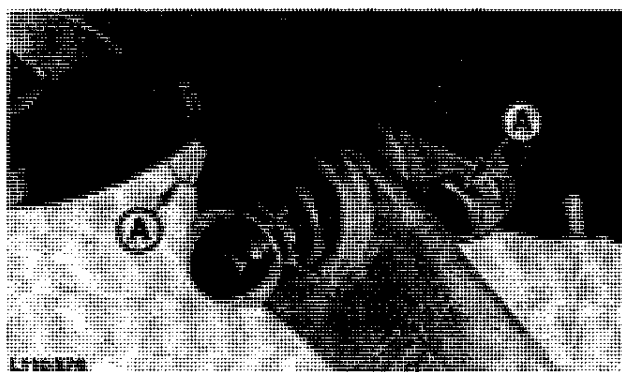


L110575

L110575-LB37015AE-010888

INSTALLING BEARING BLOCK

Tighten cap screws (A) to 230 Nm (170 ft-lb).



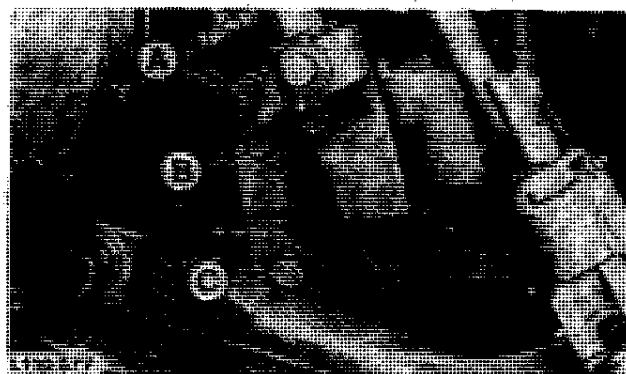
L110576

L110576-LB37015AE-010287

SECURING SWAY BLOCKS

Tighten cap screws (A and C) to 650 Nm (480 ft-lb).

Tighten cap screw (B) to 115 Nm (80 ft-lb).



L110577-LB37015AE-010287

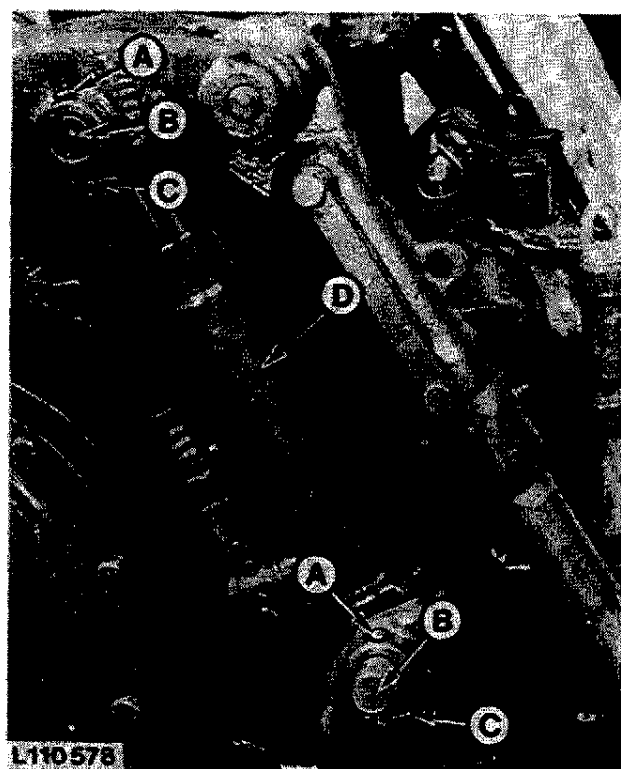
REPLACING ADDITIONAL ROCKSHAFT CYLINDER

Remove cotter pins (C).

Drive out grooved pins (A) and pin (B) and lift off additional rockshaft cylinder (D).

A-Grooved pins
B-Pin

C-Cotter pin
D-Additional rockshaft cylinder



L110578

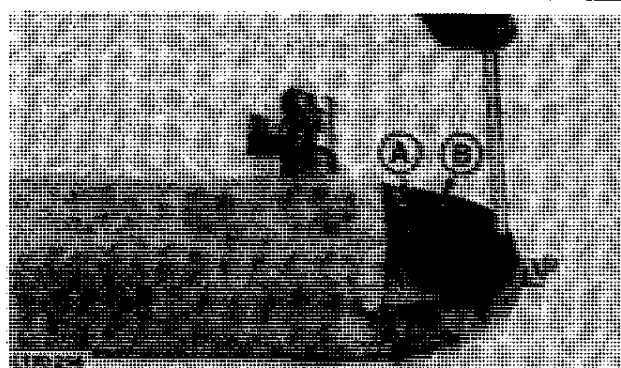
L110578-LB37015AE-000287

REPLACING BEARINGS OF ADDITIONAL ROCKSHAFT CYLINDER

Remove snap ring (B) and press out bearings (A).

NOTE: When pressing out, apply pressure to outer edge of bearings only.

Bearing must be installed with its groove at right angles to center line of cylinder.

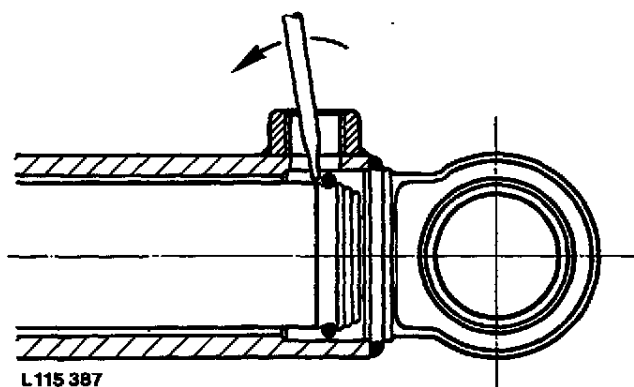
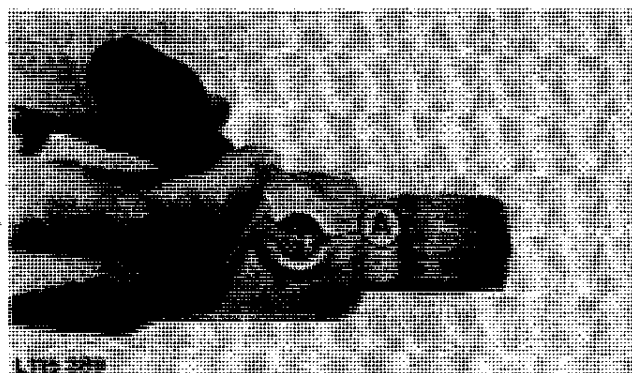


L110214-LB37015AE-010287

DISASSEMBLING ADDITIONAL ROCKSHAFT CYLINDER

Unhook one end of snap ring (A) with a screwdriver, prying it over the shoulder of piston rod groove. Rotate piston rod to remove snap ring.

Pull piston rod out of cylinder.



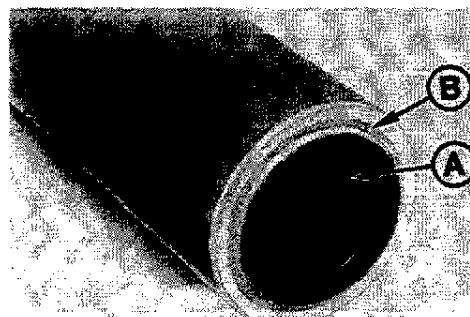
L115 387

L115389, L115387-LB37015AE-010287

REPLACING SEAL RING AND WIPER SEAL

NOTE: Sealing lip of seal ring (A) must face inward.

A-Seal ring
B-Wiper seal



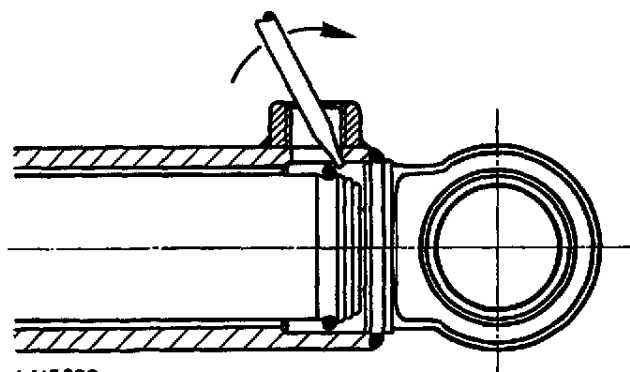
L115 390

L115390-LB37015AE-010287

ASSEMBLING ADDITIONAL ROCKSHAFT CYLINDER

Install snap ring and piston rod in cylinder.

Press snap ring with piston rod against bottom of cylinder. Pry one end of snap ring over shoulder of piston rod groove. Rotate rod until snap ring engages in groove.



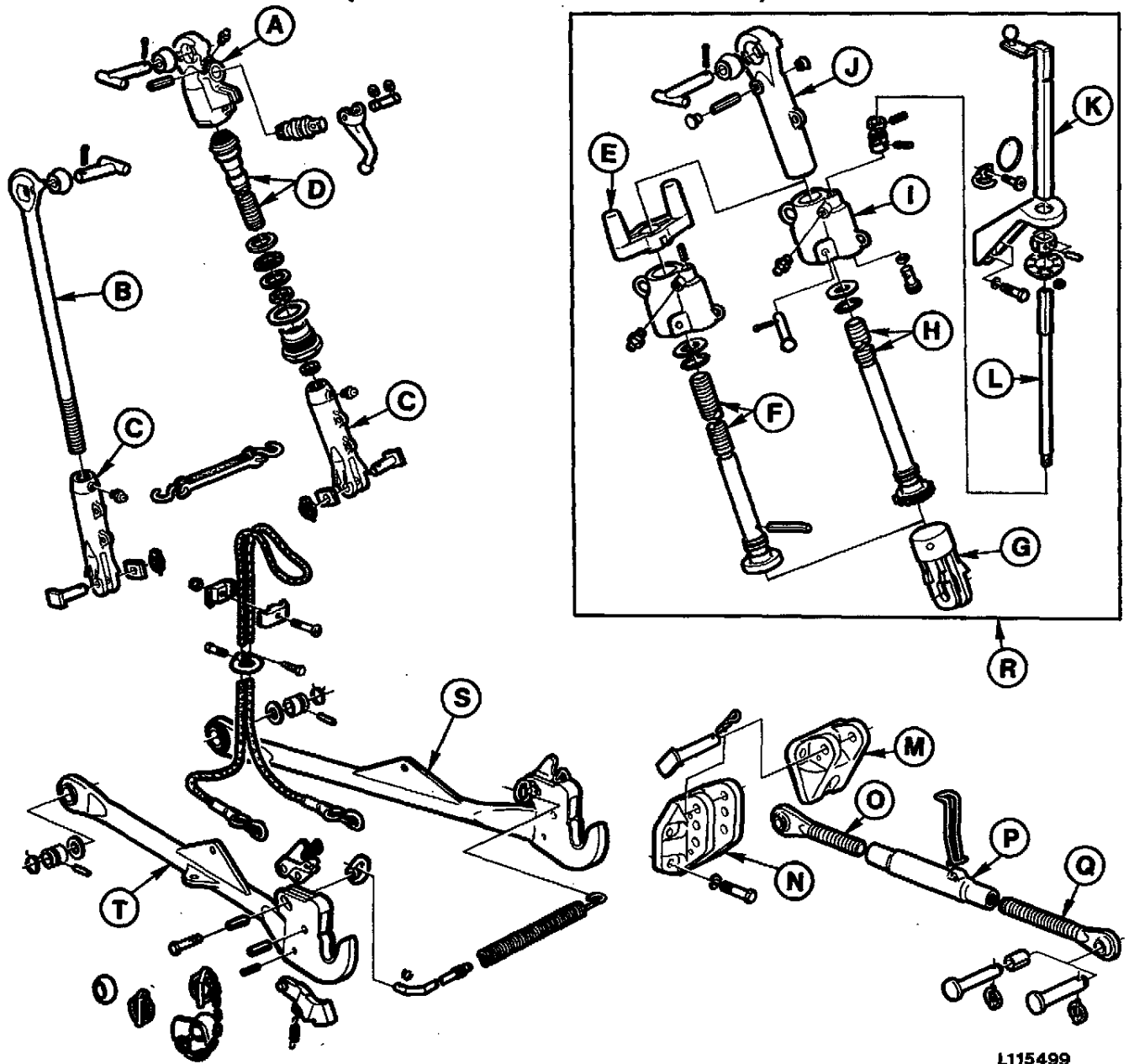
L115 388

L115388-LB37015AE-010287



-

THREE-POINT HITCH, EXPLODED VIEW (WITH HOOK-TYPE DRAFT LINKS)



L115499

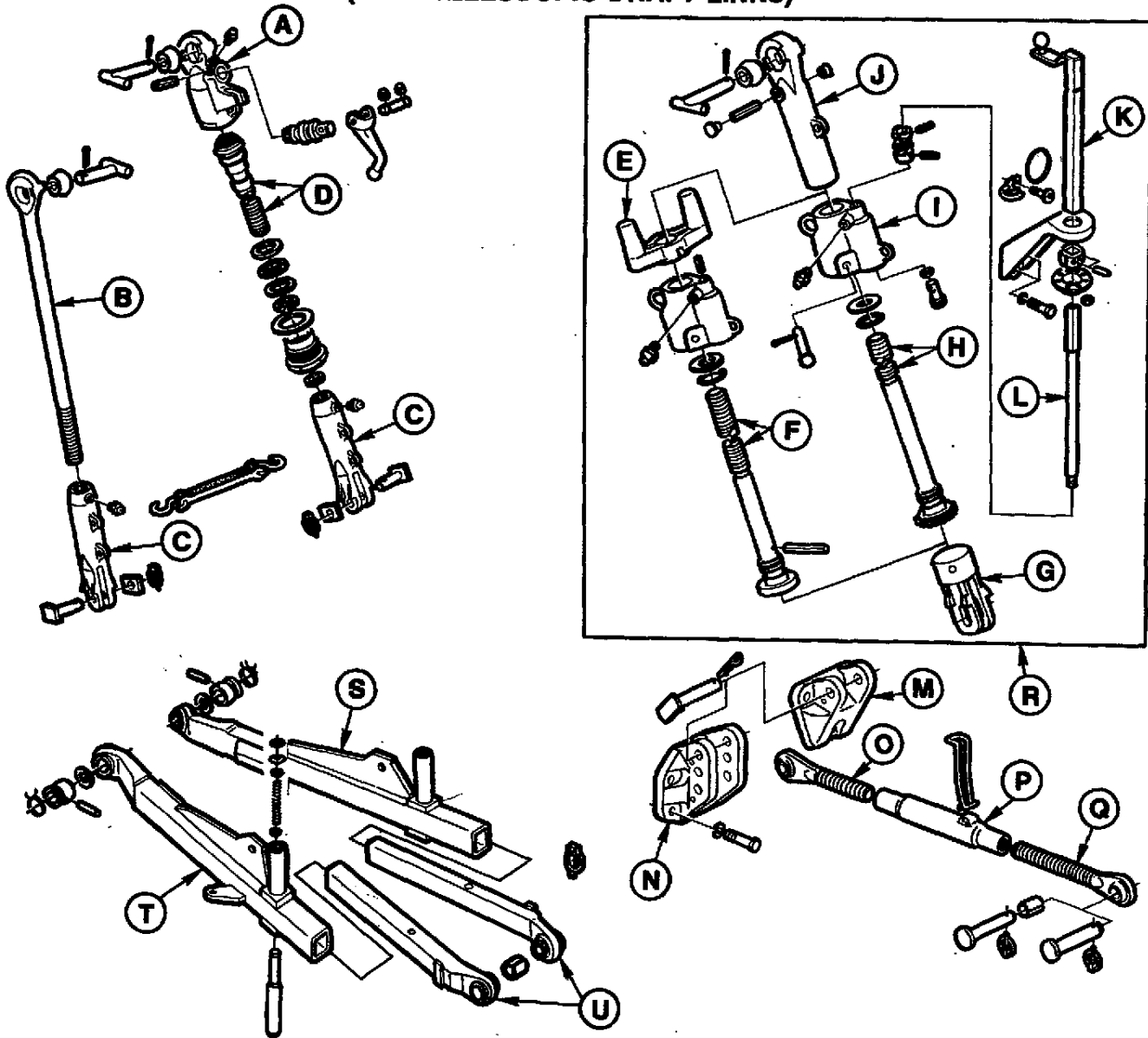
A—Lift link housing
B—Left-hand lift link
C—Lift link fork
D—Right-hand lift link
E—Handle
F—Lift link
G—Fork end

H—Right-hand lift link
I—Housing
J—Lift link housing
K—Square shaft crank
L—Extension
M—Center link bracket
N—Center link bracket

O—Adjusting link
P—Adjusting sleeve
Q—Adjusting link
R—On tractors with cab
S—Right-hand draft link hook
T—Left-hand draft link hook

L115499-LB37015AE-010287

THREE-POINT HITCH, EXPLODED VIEW (WITH TELESCOPIC DRAFT LINKS)



L115501

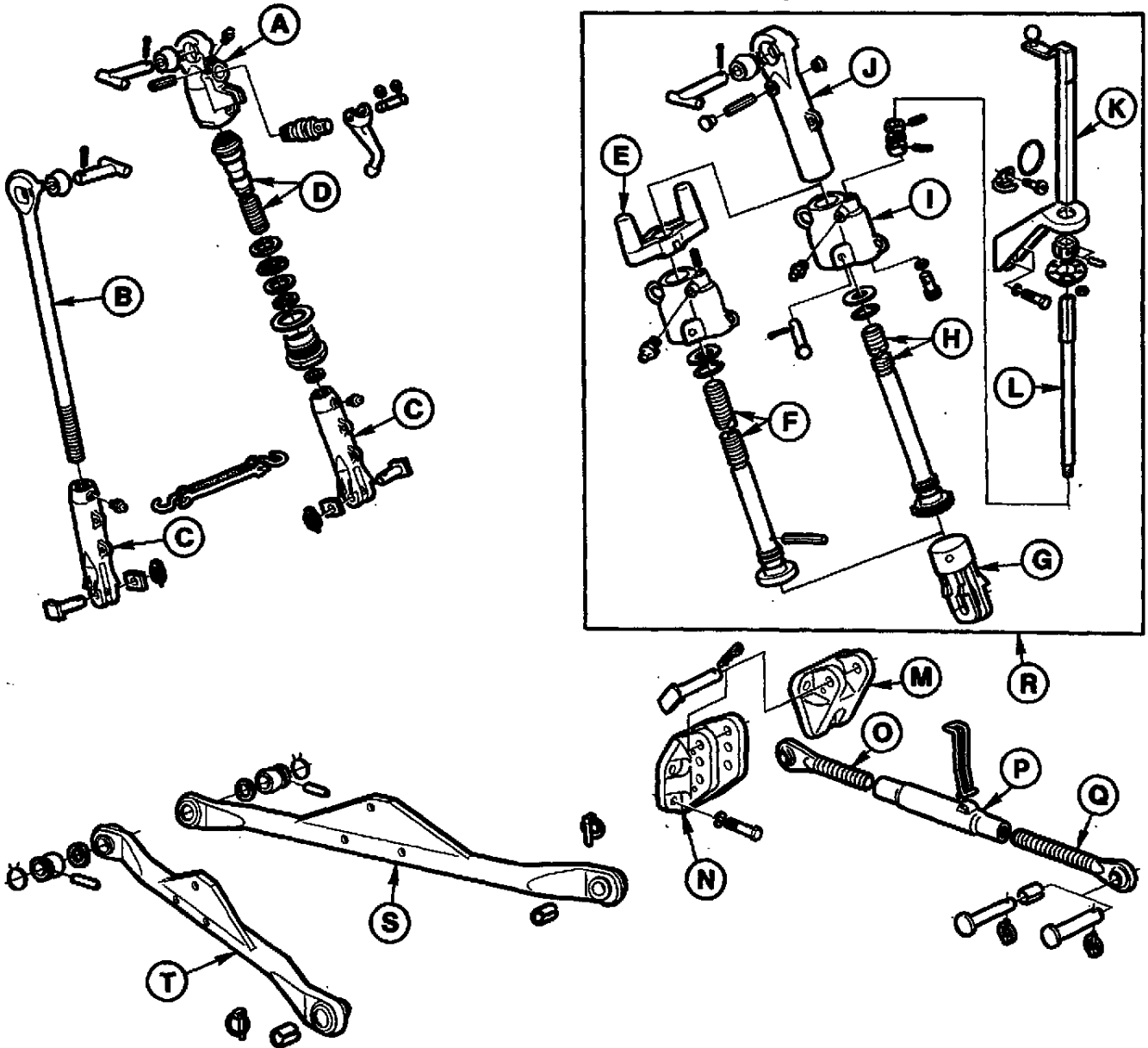
A-Lift link housing
B-Left-hand lift link
C-Lift link fork
D-Right-hand lift link
E-Handle
F-Lift link
G-Fork end

H-Right-hand lift link
I-Housing
J-Lift link housing
K-Square shaft crank
L-Extension
M-Center link bracket
N-Center link bracket

O-Adjusting link
P-Adjusting sleeve
Q-Adjusting link
R-On tractors with cab
S-Right-hand draft link
T-Left-hand draft link
U-Extensions

L115501-LB37015AE-010297

THREE-POINT HITCH, EXPLODED VIEW (WITH REVERSIBLE DRAFT LINKS)



L115500

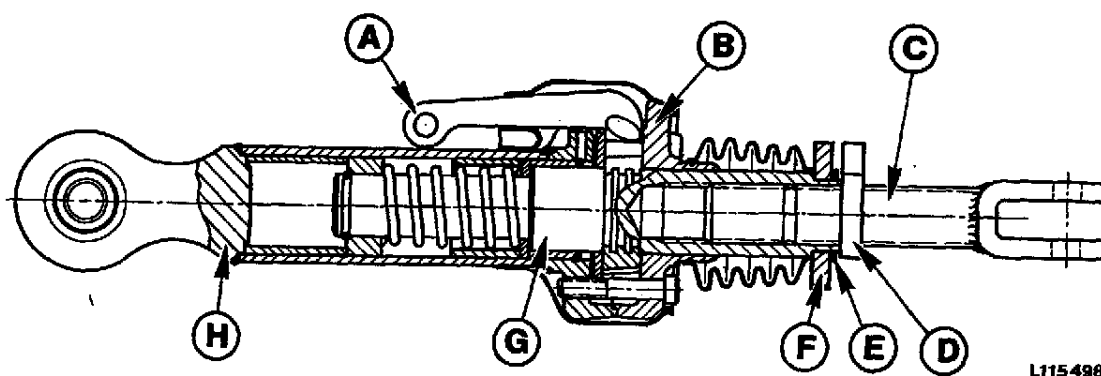
A—Lift link housing
B—Left-hand lift link
C—Lift link fork
D—Right-hand lift link
E—Handle
F—Lift link
G—Fork end

H—Right-hand lift link
I—Housing
J—Lift link housing
K—Square shaft crank
L—Extension
M—Center link bracket
N—Center link bracket

O—Adjusting link
P—Adjusting sleeve
Q—Adjusting link
R—On tractors with cab
S—Right-hand draft link
T—Left-hand draft link

L115500-LB37015AE-010287

STABILIZER ROD, SECTIONAL VIEW



L115498

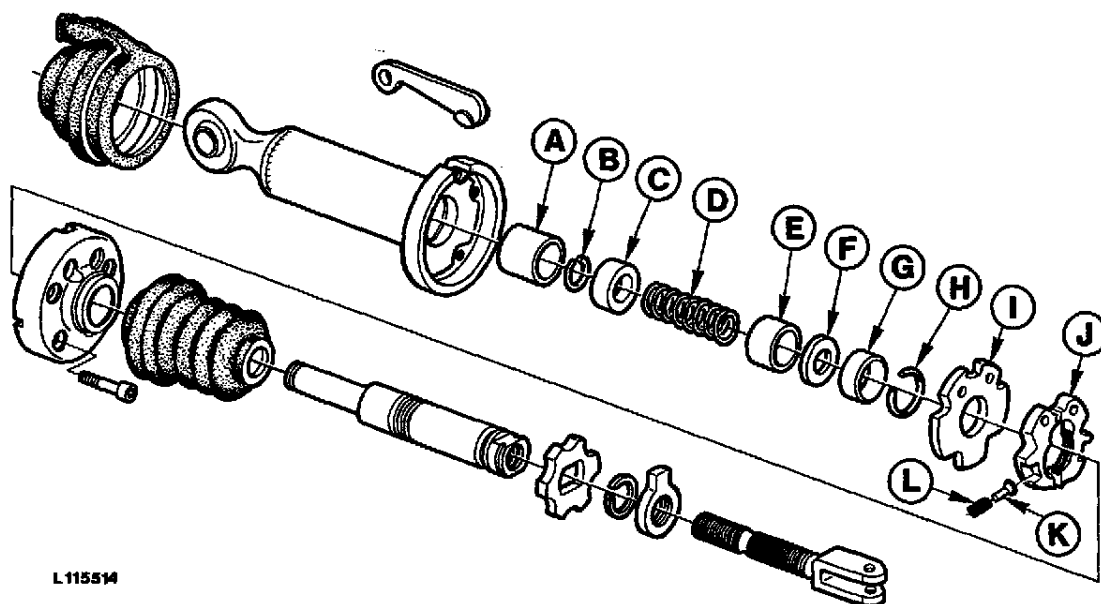
A-Lever
B-Flange
C-Fork end*
D-Special nut

E-Washer
F-Adjusting ring
G-Ring-grooved shaft
H-Housing

* With telescopic and hook-type draft links

L115498-LB37015AE-010888

STABILIZER ROD, EXPLODED VIEW



L115514

A-Spacer sleeve
B-Snap ring
C-Guide ring

D-Spring
E-Spacer bushing
F-Thrust washer

G-Bushing
H-Snap ring
I-Special washer

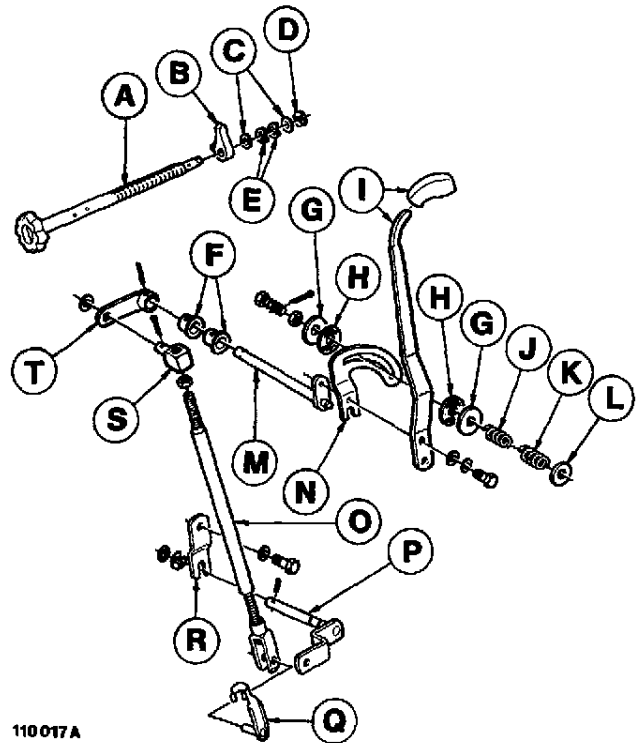
J-Clamp
K-Pin (2 used)
L-Spring (2 used)

L115514-LB37015AE-010287

CONTROL LEVER, EXPLODED VIEW (WITH SG2 CAB)

Replace individual parts when necessary.
See Section 50, Group 30, for removal and installation
of control lever console.

A-Adjusting screw
B-Stop
C-Washers
D-Snap ring
E-Spring washers
F-Bushings
G-Washers
H-Friction washers
I-Control lever
J-Spring
K-Spring
L-Washer
M-Lever shaft
N-Quadrant
O-Rod
P-Lever shaft
Q-Safety strap
R-Link
S-Swivel joint
T-Lever



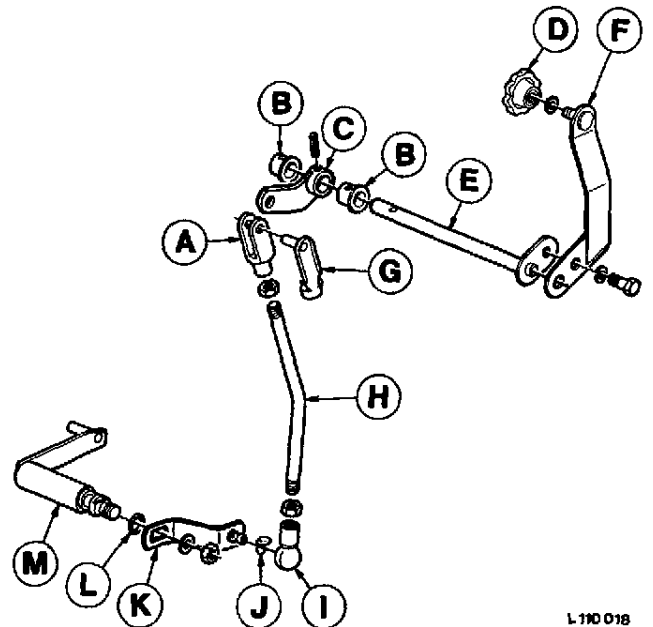
110 017 A

L110017A-LB37015AE-010287

SELECTOR LEVER, EXPLODED VIEW (WITH SG2 CAB)

Replace individual parts when necessary.
See Section 50, Group 30, for removal and installation
of selector lever console.

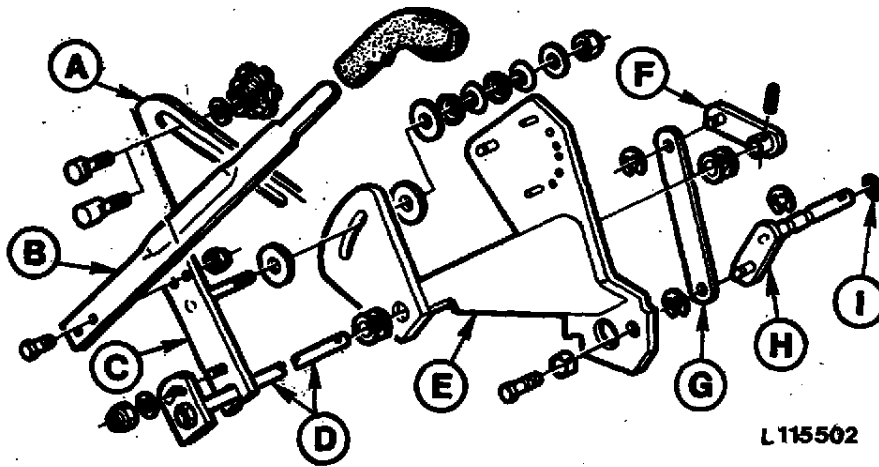
A-Fork end
B-Bushings
C-Lever
D-Securing knob
E-Lever shaft
F-Lever
G-Safety strap
H-Rod
I-Ball joint
J-Safety strap
K-Lever
L-O-ring
M-Lever shaft



L 110 018

L110018-LB37015AE-010287

CONTROL LEVER, EXPLODED VIEW
(With MC1 Cab, up to Tractor Serial No. 637 600L)



L 115502

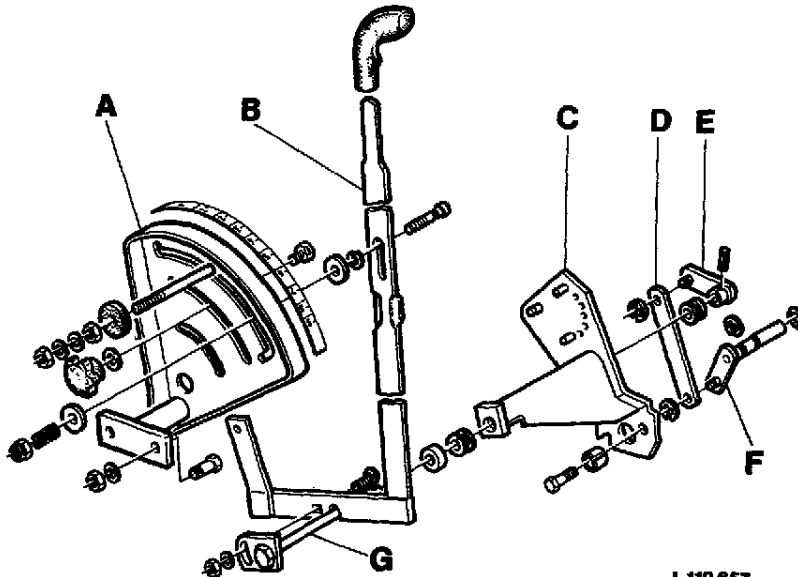
A-Quadrant
B-Control lever
C-Lever

D-Lever shaft
E-Quadrant
F-Lever

G-Link
H-Lever shaft
I-O-Ring

L115502-LB37015AE-010888

CONTROL LEVER, EXPLODED VIEW
(With MC1 Cab from Tractor Serial No. 637 601L)



L 119 657

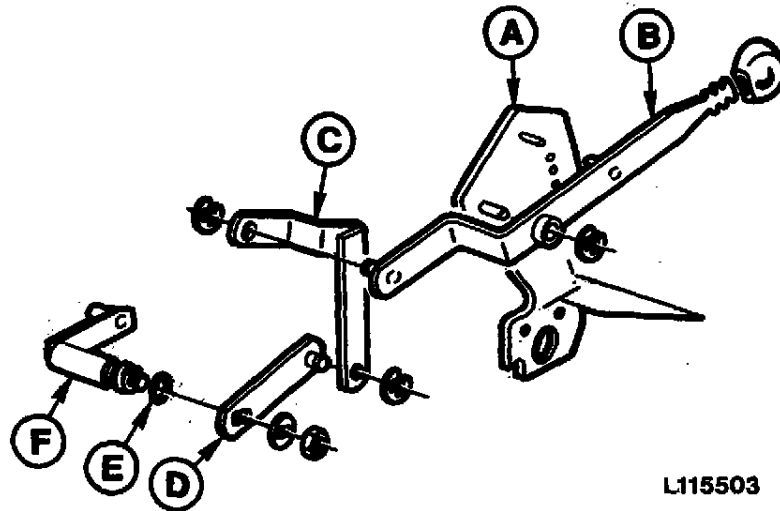
A-Quadrant
B-Control lever
C-Console

D-Link
E-Lever

F-Lever shaft
G-Lever shaft

L119657-LB37015AE-010888

**SELECTOR LEVER, EXPLODED VIEW
(With MC1 Cab)**



A-Quadrant
B-Selector lever

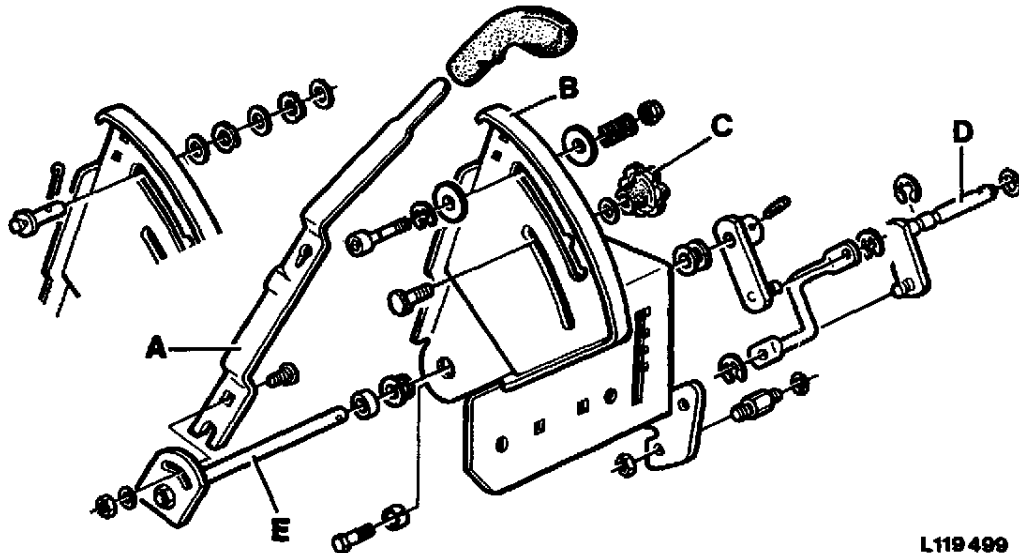
C-Lever
D-Link

E-O-Ring
F-Lever shaft

L115503

L115503-LB37015AE-000287

**CONTROL LEVER, EXPLODED VIEW
(Without Cab)**



A-Control lever
B-Quadrant

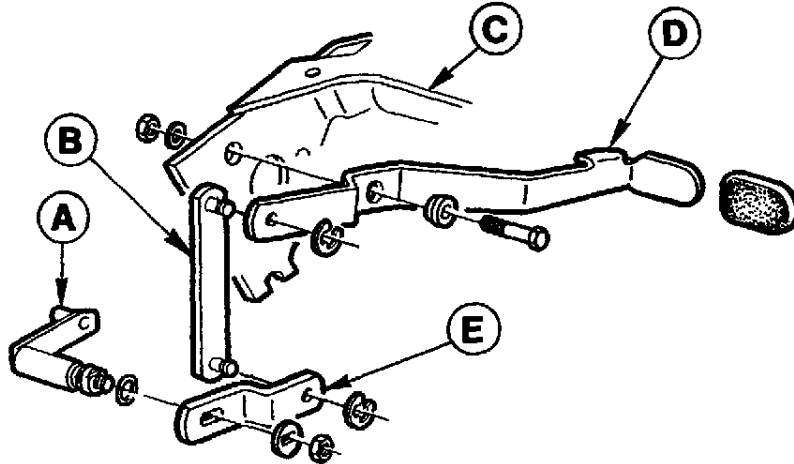
C-Securing knob

D-Lever shaft
E-Lever shaft

L119499

L119499-LB37015AE-010888

SELECTOR LEVER, EXPLODED VIEW (Without Cab)



L 112 756

A-Lever shaft
B-Link

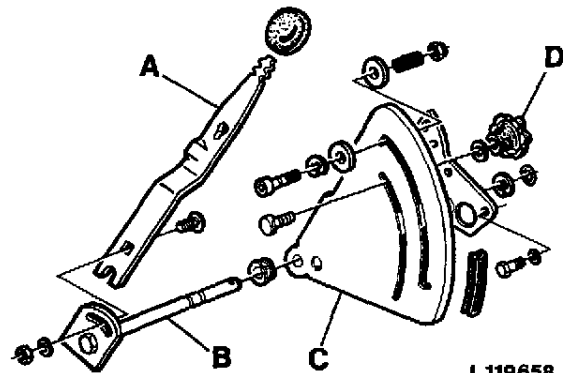
C-Lower section of quadrant

D-Selector lever
E-Lever

L112756-LB37015AE-000287

CONTROL LEVER, EXPLODED VIEW (Narrow Tread Tractors)

A-Control lever
B-Lever shaft
C-Quadrant
D-Securing knob

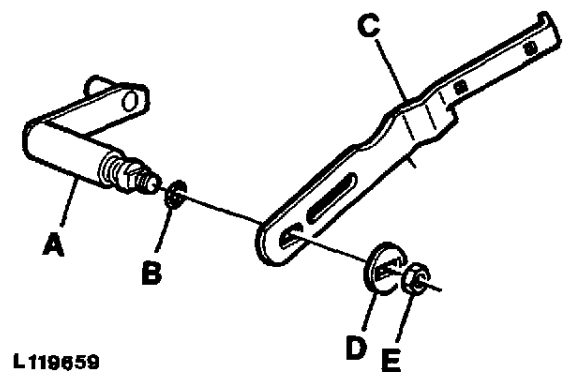


L 119658

L119658-LB37015AE-010188

SELECTOR LEVER, EXPLODED VIEW (Narrow Tread Tractors)

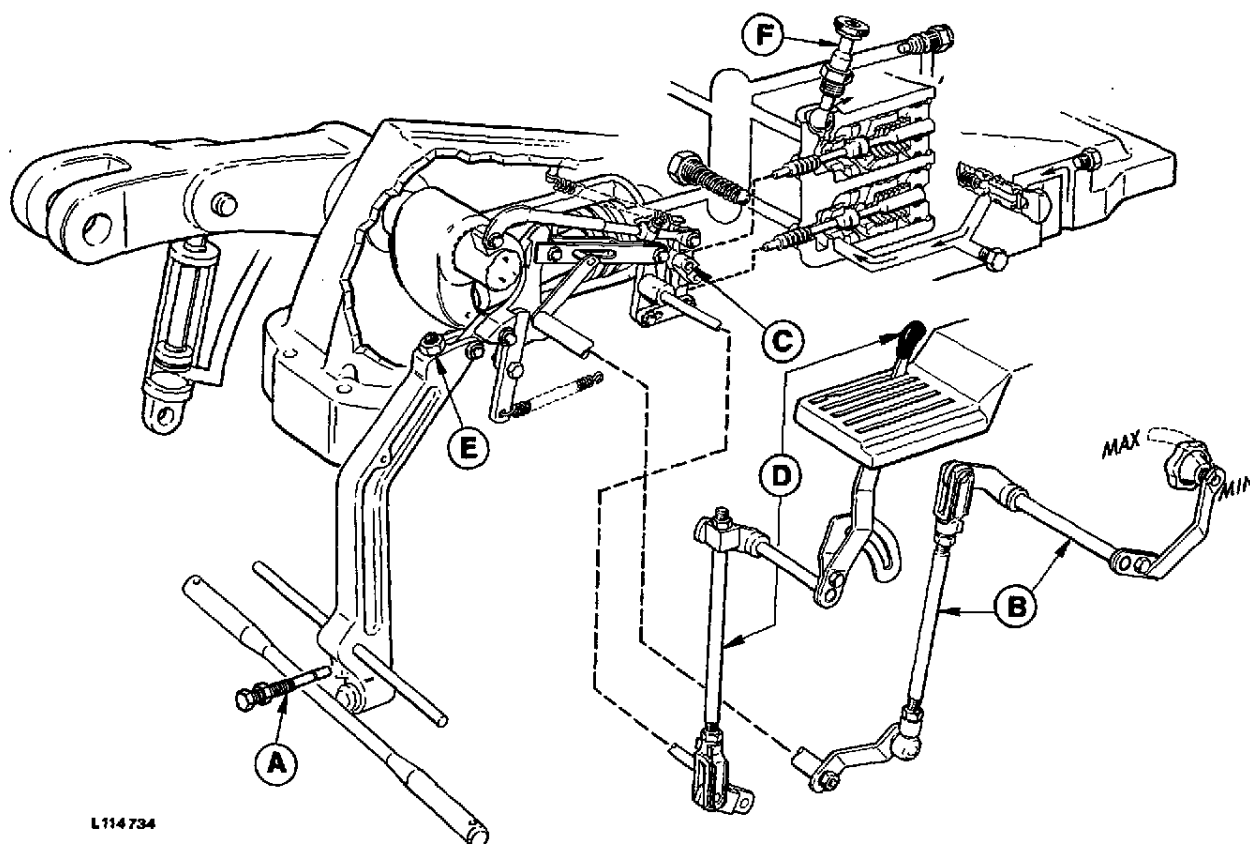
A-Lever shaft
B-O-ring
C-Selector lever
D-Special washer
E-Hex. nut



L 119659

L119659-LB37015AE-010888

ROCKSHAFT ADJUSTMENT (WITH SG2 CAB)



L114734

A-Adjusting load control arm
B-Adjusting selector lever

C-Adjusting valve clearance
D-Adjusting control lever

E-Adjusting commencement of lift,
load control ("MAX")
F-Adjusting rate-of-drop

Check oil level before making any rockshaft adjustments.

Run engine to bring oil to operating temperature (see "Warming up Hydraulic Oil", Section 270).

Check for leaks.



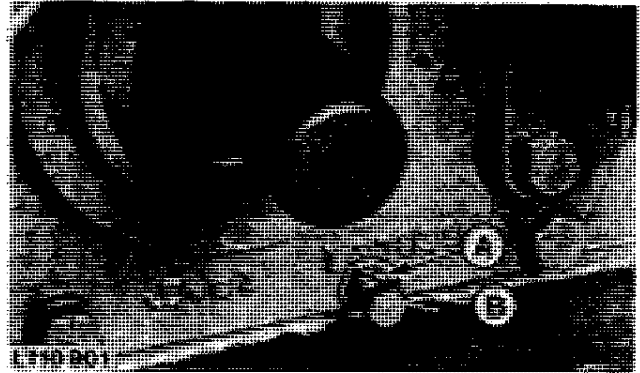
CAUTION: If adjustments are made on rockshaft with engine running, lift arms may rise and cause injury. Keep clear of lift arms and draft link area!

L114734-LB37015AE-010287

ADJUSTING LOAD CONTROL ARM

Turn in adjusting screw (B) until it contacts load control arm, then back off 1/3 to 1/2 a turn and lock in position by means of hex. nut (A).

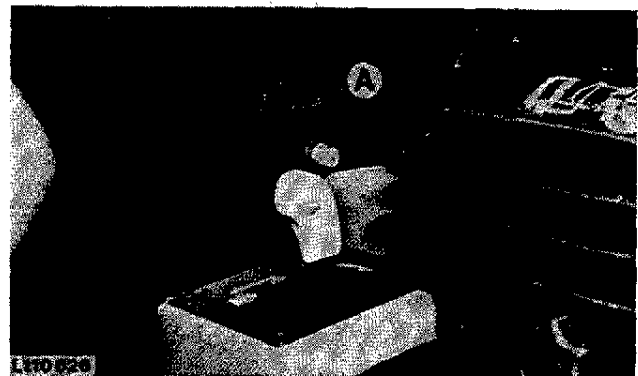
NOTE: Contact of adjusting screw with load control arm can be felt with a screwdriver through oil filler opening of rockshaft housing.



L110901-LB37015AE-010287

ADJUSTING SELECTOR LEVER

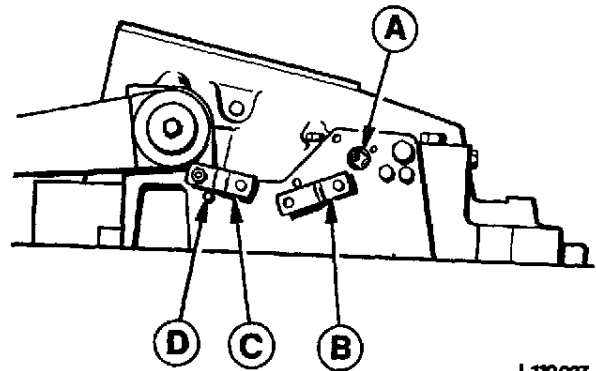
Lock selector lever knob (A) in "MAX" position (load control).



L110026-LA77015AE-250185

Position lever (C) against stop pin (D).

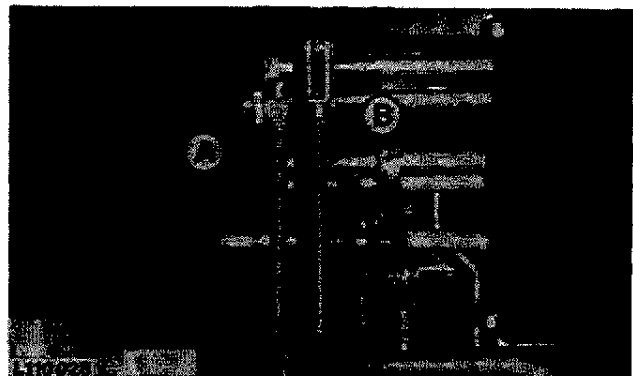
A-Valve clearance adjusting screw
B-Control lever shaft
C-Selector lever shaft
D-Stop pin



L110027-LB27015AE-010886

Install connecting rod (B) tension-free.
Control lever must move easily from "MAX" to "MIN" position.

A-Control lever connecting rod
B-Selector lever connecting rod

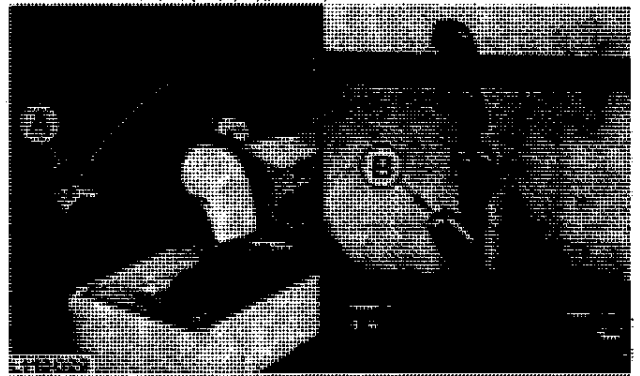


L110028-LA77015AE-250185

ADJUSTING VALVE CLEARANCE

Load draft links with a weight of approx. 100 kg (220 lb) (e.g. attach an implement). Move selector lever (A) to "MIN" position (depth control).

Lower lift arms fully.
Move control lever (B) to center of console.
Close rate-of-drop screw.

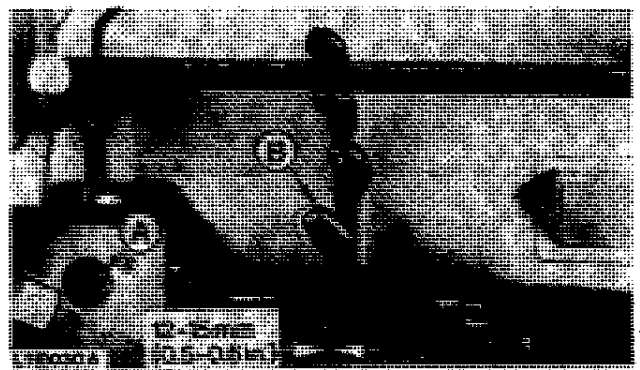


L110029-LB27015AE-010886



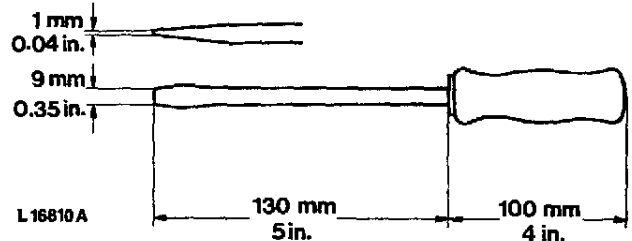
CAUTION: When engine is started, lift links will start to rise.

Remove square socket plug.
Run engine at 1300 rpm.
Turn adjusting screw (A) counter-clockwise until lift arms just start to rise. Turn adjusting screw 1/4 of a turn clockwise. Open rate-of-drop screw. The control lever (B) should have between 12 and 15 mm (0.5 to 0.6 in.) clearance between raising and lowering movement.



L110030A-LB37015AE-010888

NOTE: For this adjustment it is necessary to use a screwdriver which fits exactly into slot of adjusting screw.

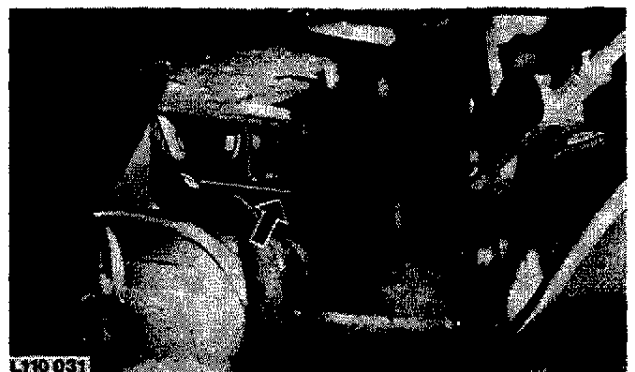


L16810A-LB27015AE-010886

Valve clearance must be adjusted from underneath the tractor.



CAUTION: Do not adjust in front of or behind rear wheel of tractor.



L110031

L110031-LA77015AE-250185

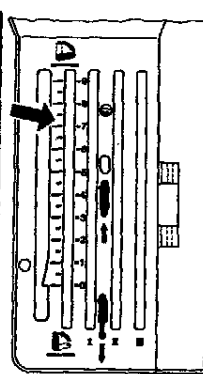
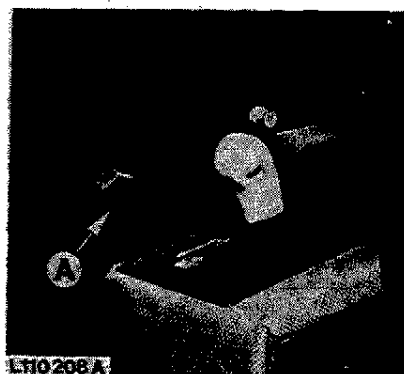
ADJUSTING CONTROL LEVER



CAUTION: When disconnecting yoke ends, with engine running, take care as the lift arms will rise.

Run engine at 1300 rpm with selector lever (A) set to "MIN".

Lower lift arms and then move front edge of control lever to between positions "7" and "7.5".



L110208A-LB27015AE-010886

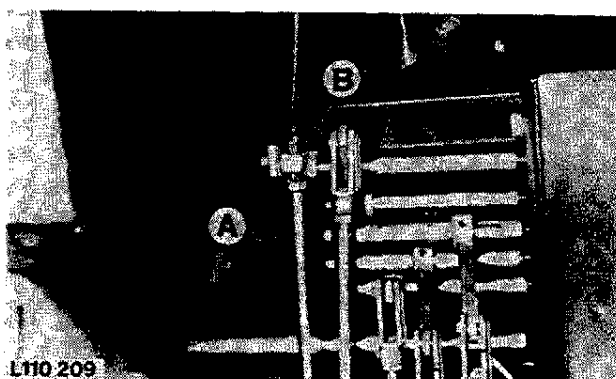
Remove plastic rivets of right-hand lift arm cover in operator's cab.

From operator's seat through opening in cab, adjust rod (A) until lift arms just start to rise.



CAUTION: Never attempt to perform this adjustment from rear of tractor due to risk of injury.

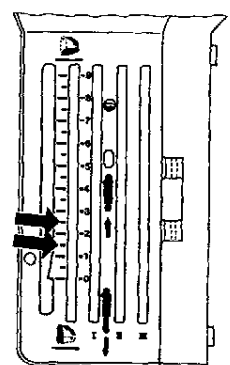
Secure swivel joint (B).



L110209-LA77015AE-250185

Move control lever to rear until front edge has reached position "1.5" to "2.5".

Lift arms should now be in their highest position. Should this position not be reached, then adjust initial position.



L110210A

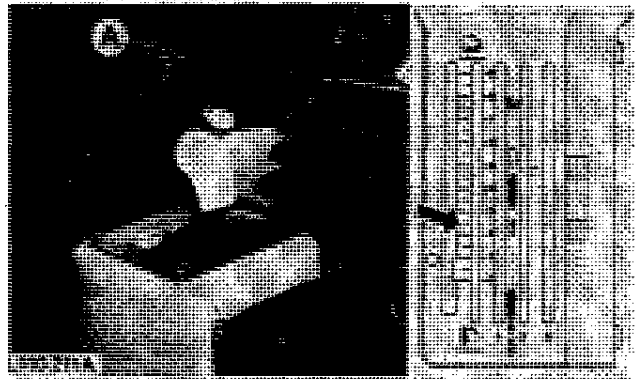
L110210A-LB27015AE-010886

ADJUSTING COMMENCEMENT OF LIFT WITH LOAD CONTROL

Lower lift arms.

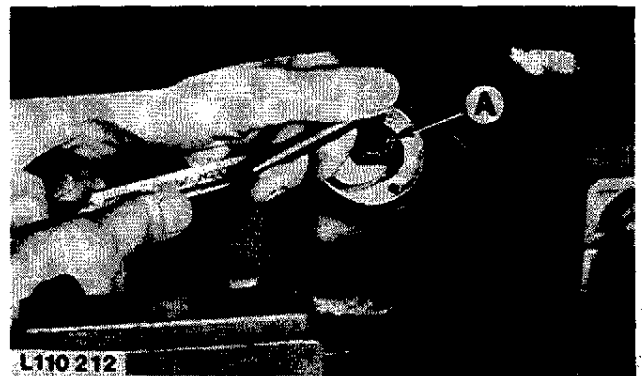
Set selector lever (A) to "MAX". Run engine at 1300 rpm. Move control lever to between positions "2" and "2.5".

Lift arms must only now start to rise and must be fully raised before position "1".



L110211A-LB27015AE-010886

If lift arms start to rise early, then turn adjusting screw counter-clockwise with special tool JDG402 (A) until lift arms are lowered. Then turn adjusting screw clockwise until lift arms just start to rise. Tighten adjusting screw lock nut.

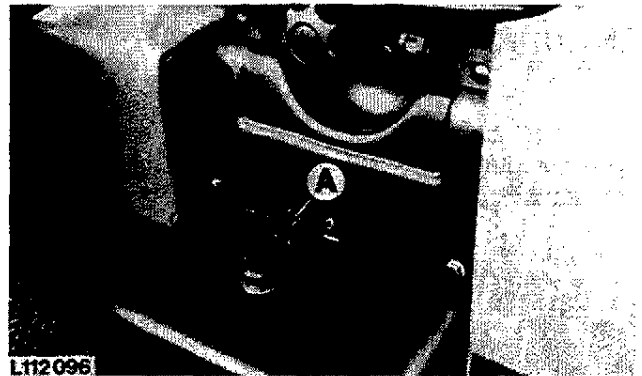


L110 212

L110212-LB27015AE-010886

RATE-OF-DROP ADJUSTMENT

Rate-of-drop should be not less than 2 seconds. To increase rate-of-drop, turn out rate-of-drop screw (A) and turn inward to reduce.

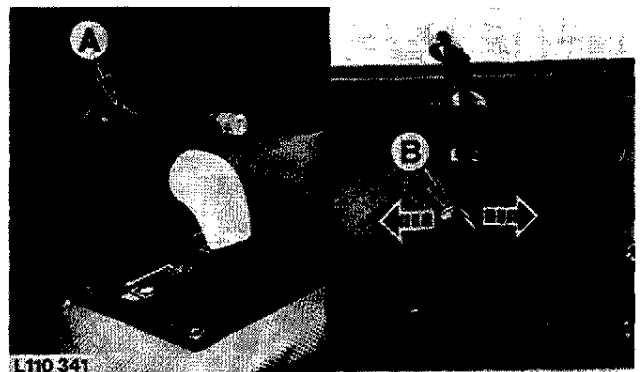


L112096

L112096-LB27015AE-010886

LOAD-AND-DEPTH FUNCTIONAL TEST

Move selector lever (A) to center position (load-and-depth). Shift rockshaft control lever over complete range. Lift arms must thereby lift and lower completely.



L110 341

L110341-LA77015AE-250185

GENERAL FUNCTIONAL TEST

Move rockshaft control lever (B) forward to "LOWER" position.

Move selector lever (A) from "MAX" to "MIN" and back to "MAX".

Move control lever to the rear to "RAISE" position.

Move selector lever from "MAX" to "MIN" and back to "MAX".

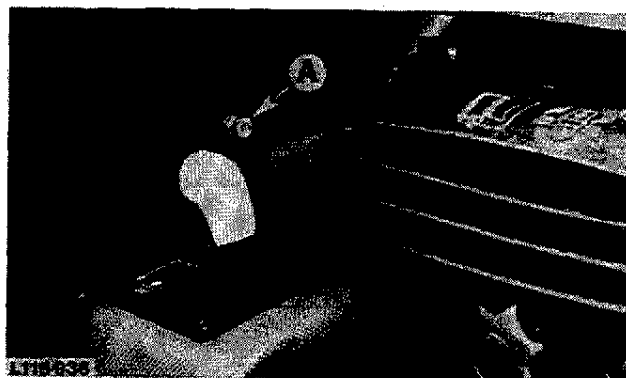
The lift arms should not move when moving load selector lever from "MAX" to "MIN" and back to "MAX".



L110342-LA77015AE-250185

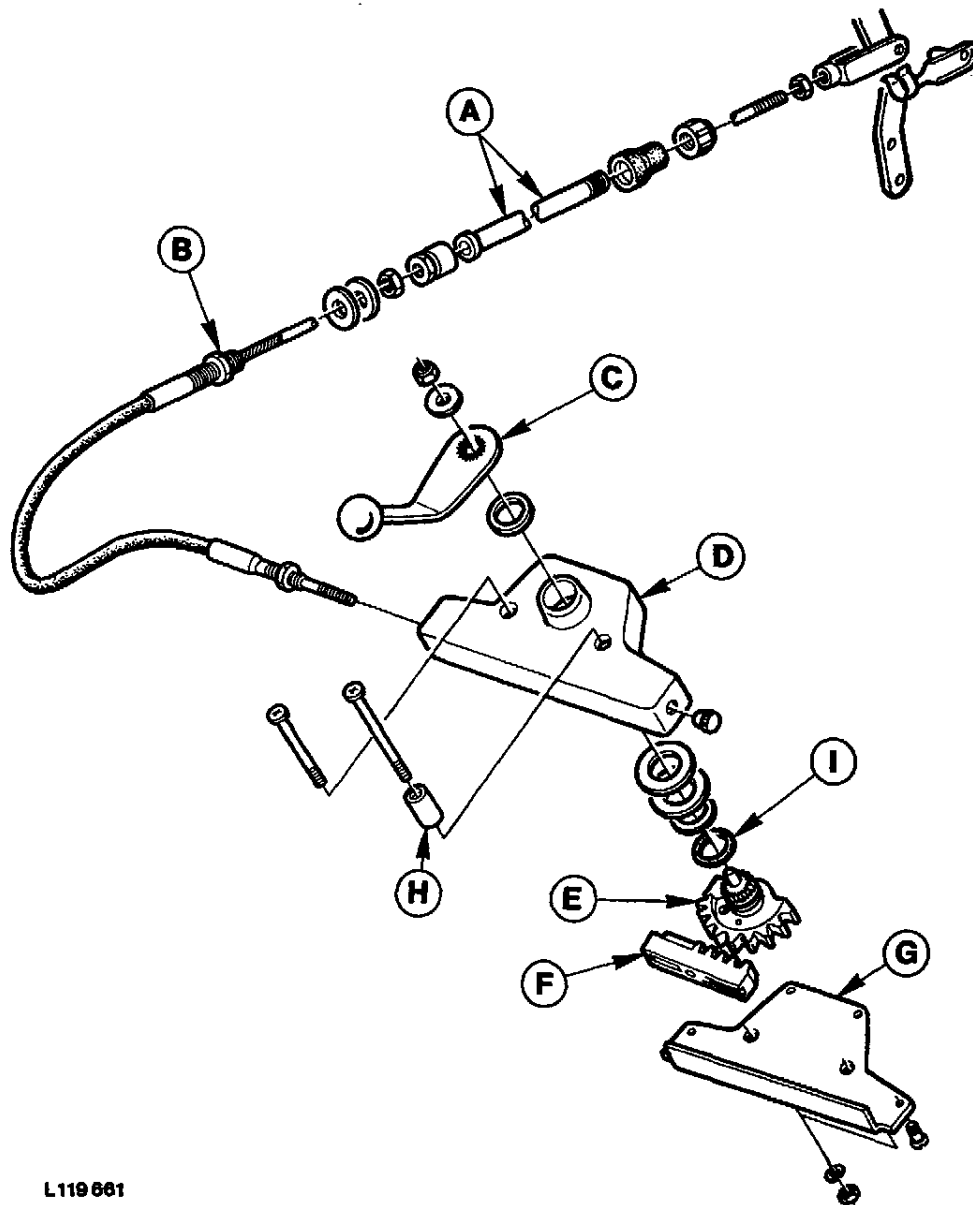
ADJUSTING MOVEMENT OF CONTROL LEVER

Vibration should not cause control lever to change its position during operation. If this is the case, adjust movement with adjusting screw (A) after loosening lock nut.



L115936-LB37015AE-010287

ROCKSHAFT REMOTE CONTROL, EXPLODED VIEW



L119 661

A—Shaft joint
B—Remote control cable
C—Lever

D—Housing
E—Toothed segment
F—Rack

G—Cover
H—Stop bushing
I—O-ring*

* On later tractor series

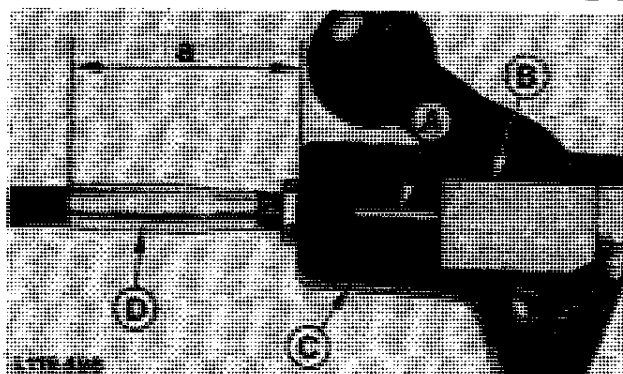
L119661-LB37015AE-010888

INSTALLING REMOTE CONTROL CABLE

Screw cable inner part (A) completely into rack (B). Screw cable sleeve (D) up to a clearance of 50 mm (1.97 in.) on earlier tractor series or 35 mm (1.38 in.) on later tractor series (see measurement "a") into housing (C) and tighten lock nut.

A—Cable inner part
B—Rack

C—Housing
D—Cable sleeve



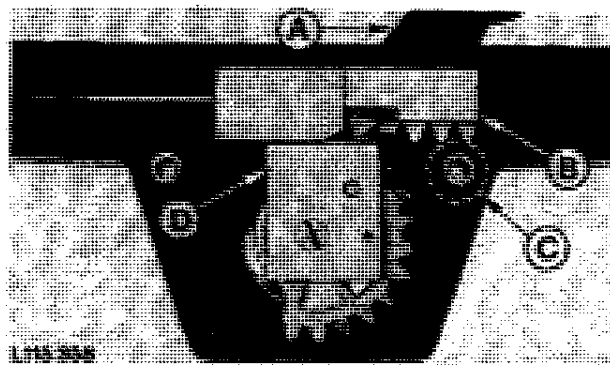
L119498-LB27015AE-010488

ASSEMBLING REMOTE CONTROL UNIT

Insert rack (B) with plate (D) in vertical position. In this position insert lever (A) to a point where it will contact stop (C) which is installed later. Install cover.

A—Lever
B—Rack

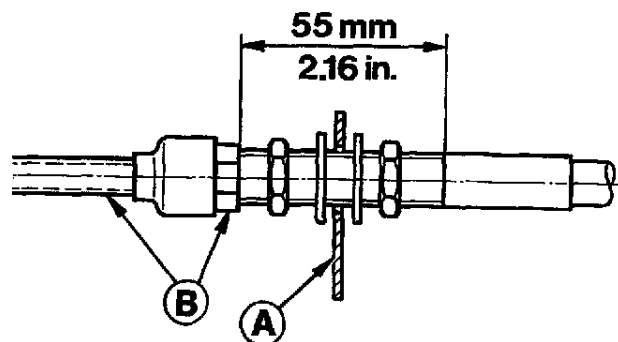
C—Stop
D—Plate



L115358-LB37015AE-010287

ADJUSTING REMOTE CONTROL CABLE

Attach remote control unit to fender. Insert control cable through bore in cab panel (A). Install cable connector (B).



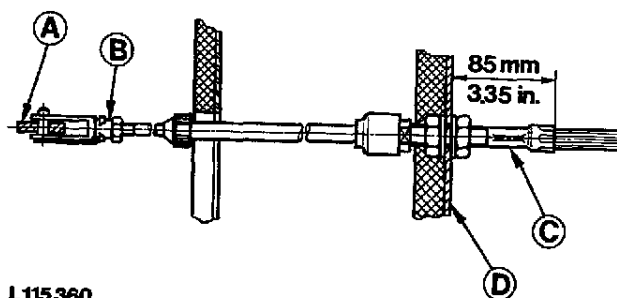
L119677

L119677-LB37015AE-010888

Attach counter-locked fork (B) to control lever (A). Attach bowden cable (C) and lock in position with a clearance to cab panel of 85 mm (3.35 in.).

A—Control lever
B—Fork end

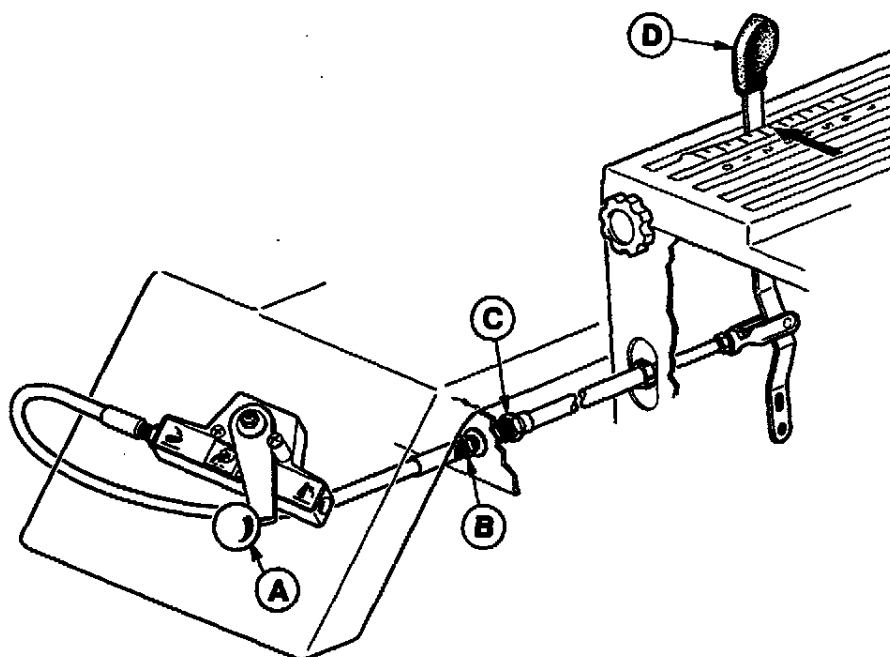
C—Bowden cable
D—Cab panel



L115360

L115360-LB27015AE-000488

ADJUSTING AND CHECKING ROCKSHAFT REMOTE CONTROL



L112765

A—Remote control lever

B—Outer hex. nut

C—Inner hex. nut

D—Control lever

After correct rockshaft adjustment and installation of remote control, position remote control lever (A) in the right-hand end position (RAISE) and hold in this position.

By turning hex. nuts (B and C) forward or backward, adjust control lever (D) so that front edge is between marks "3.2" and "3.5". Lock hex. nuts (B and C) without altering the adjustment.

NOTE: Always recheck and readjust rockshaft remote control whenever parts have been replaced.

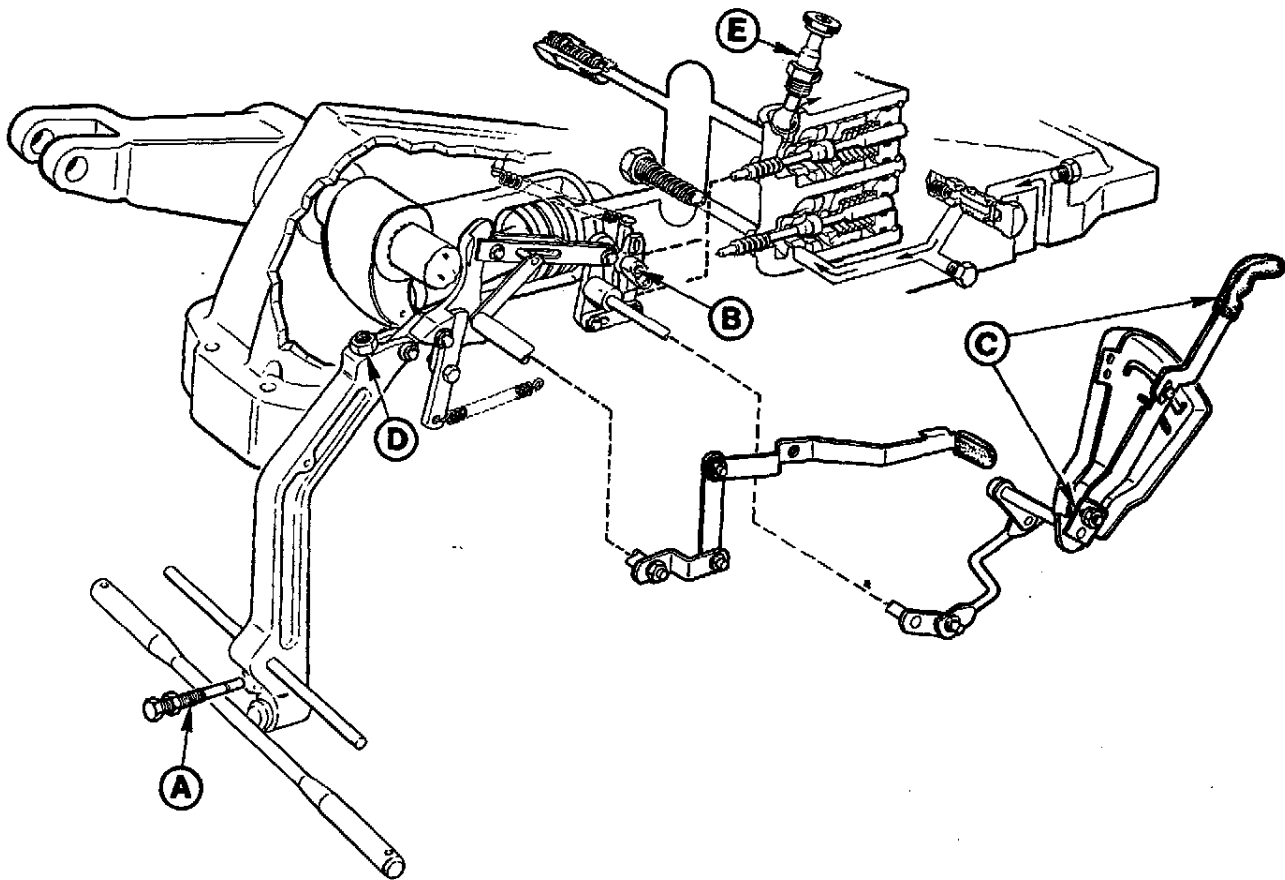


CAUTION: With selector lever in position "MIN", the lift arms should not rise to the upper end position when remote control lever is in position "RAISE".

With selector lever in position "MAX", the lift arms should not rise when remote control lever is in position "RAISE".

L112765-LB27015AE-000488

ROCKSHAFT ADJUSTMENT (WITH MC1 CAB AND WITHOUT CAB)



L 115513

A-Adjusting load control arm
B-Adjusting valve clearance

C-Adjusting control lever
D-Adjusting commencement of lift,
load control (MAX)

E-Adjusting rate-of-drop

Check oil level before making adjustments on the rockshaft.

Run engine to bring oil to operating temperature (see Technical Manual "Operation and Tests", Section 270, Group 05) under "Warming up Hydraulic Oil".

Check for leaks.



CAUTION: If adjustments are made on rockshaft with engine running, lift arms may rise and cause injury. Keep clear of lift arms and draft link area!

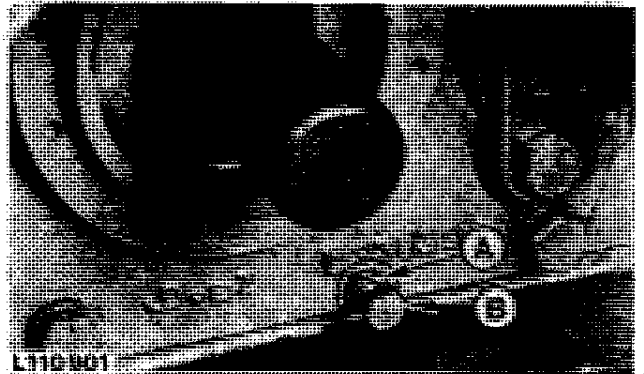
L115513-LB37015AE-000287

Rockshaft

ADJUSTING LOAD CONTROL ARM

Turn in adjusting screw (B) until it contacts load control arm, then back off 1/3 to 1/2 a turn and lock in position by means of hex. nut (A).

NOTE: Contact of adjusting screw with load control arm can be felt with a screwdriver through oil filler opening of rockshaft housing.



L110-001

L110901-LB37015AE-010287

ADJUSTING VALVE CLEARANCE



CAUTION: Do not adjust in front of or behind rear wheel of tractor.



CAUTION: On tractors equipped with MC1 cab, adjustments must be made through opening (A).

Load draft links with a weight of approx. 100 kg (220 lb) (e.g. attach an implement).

Remove square socket plug.

Move selector lever (A) to "MIN" position (depth control).

Lower lift arms fully.

Move control lever (B) to center of quadrant.

Close rate-of-drop screw.

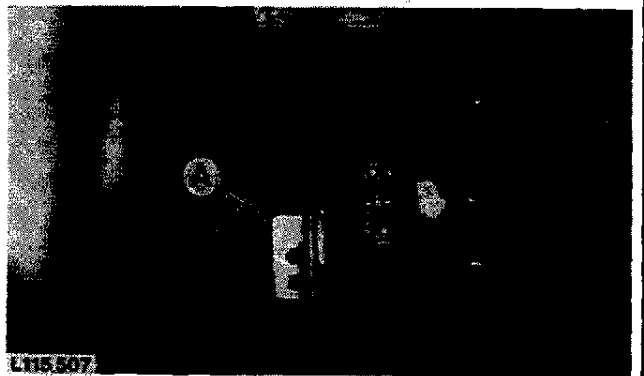


CAUTION: When engine is started, lift links will start to rise.

Run engine at 1300 rpm.

Turn adjusting screw (C) counterclockwise until lift arms just start to rise. Turn adjusting screw 1/4 of a turn clockwise.

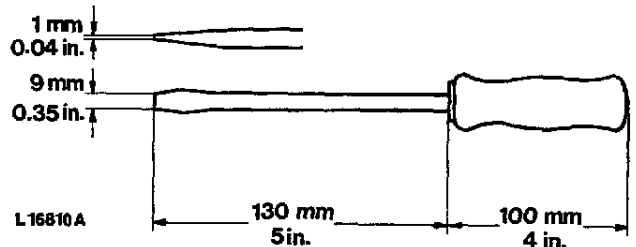
Open rate-of-drop screw.



L115-507

L115507-LB37015AE-010888

NOTE: For this adjustment it is necessary to use a screwdriver which fits exactly into slot of adjusting screw.



L16810A

L16810A-LB27015AE-010886

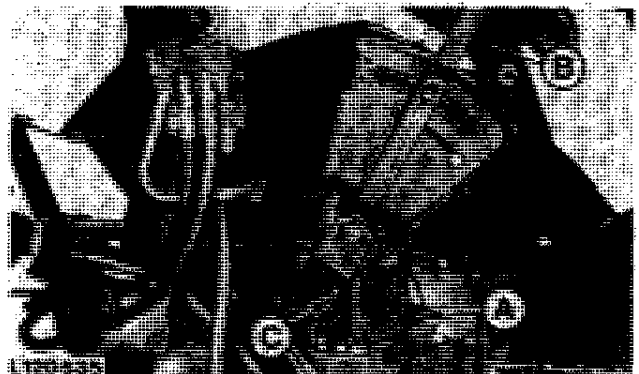
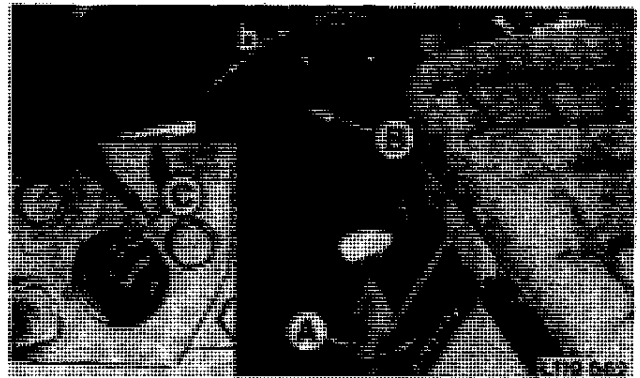
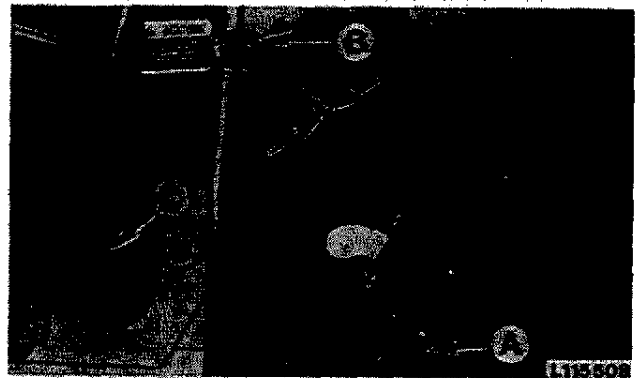
Rockshaft

Adjust control lever (B) to following clearance* between raising and lowering movement:

A—Selector lever
B—Control lever
C—Adjusting screw

- With MC1 cab up to Tractor Serial No. 637 000L: 4 to 10 mm (0.16 to 0.4 in.), see dimension "a".
- With MC1 cab from Tractor Serial No. 637 001L: 12 to 15 mm (0.46 to 0.6 in.), see dimension "b".
- Without cab: 2 to 4 mm (0.08 to 0.16 in.) See dimension "c".
- Narrow tread tractors: 3 to 6 mm (0.12 to 0.24 in.)

* Measured at upper edge of quadrant



L115508, L119662, L120535-LB37015AE-010888

ADJUSTING CONTROL LEVER



CAUTION: When hex. nut (B) is loosened, take care as the lift arms can rise.

A—Selector lever
B—Hex. nut
C—Lever shaft

Run engine at 1300 rpm with selector lever (A) in "MIN" position.

Lower lift arms and then move control lever to the rear in the following position:

With MC1 cab up to Tractor Serial No. 637 600L:
Dimension "a" measured from front end position to front edge of control lever is $10 \pm 6 \text{ mm}$ ($0.4 \pm 0.24 \text{ in.}$)*.

With MC1 cab from Tractor Serial No. 637 601L:
The front edge of control lever between positions "7" and "7.5" (see arrow).

Without cab:

Dimension "a" from front end position to front edge of control lever is $12 \pm 1\frac{1}{2} \text{ mm}$ ($0.47 \pm 0.04/-0.08 \text{ in.}$)*

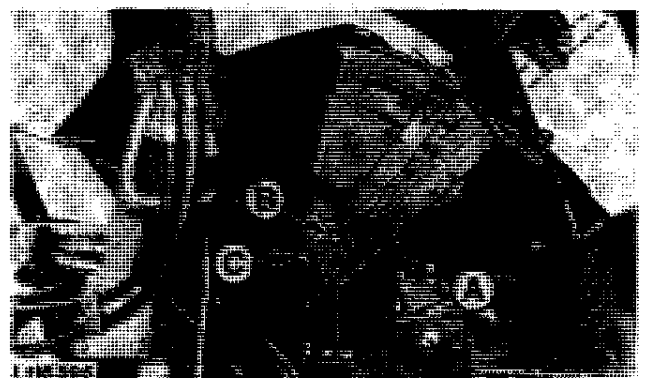
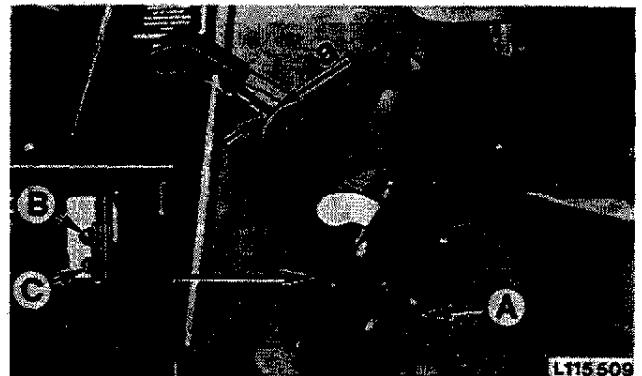
Narrow tread tractors:

$15 \pm 10/-5 \text{ mm}$ ($0.6 \pm 0.4/-0.2 \text{ in.}$)*.

Loosen hex. nut (B) and turn lever shaft (C) counter-clockwise until lift arms just start to rise.

Tighten hex. nut (B) in this position. Position lift arms in highest position.

There should be a small clearance between control lever and end of slot.



* Measured at upper edge of quadrant

ADJUSTING COMMENCEMENT OF LIFT WITH LOAD CONTROL

Lower lift arms.

Set selector lever (A) to "MAX". Run engine at 1300 rpm. Move control lever (B) to the rear in the following position:

With MC1 cab up to Tractor Serial No. 637 600L:
Dimension "a" measured from rear end position to rear edge of lever is 45 ± 6 mm (1.8 ± 0.24 in.)*.

With MC1 cab from Tractor Serial No. 637 601L:
The front end of control lever between positions "2" and "2.5" (see arrow).

Without cab:

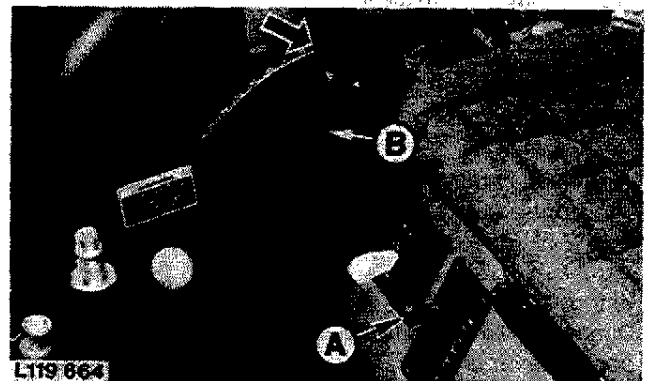
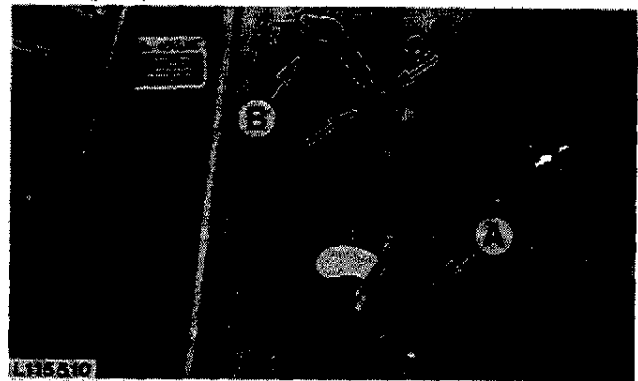
Dimension "a" measured from rear end position to rear edge of control lever is 50 ± 3 mm (2 ± 0.12 in.)*.

Narrow tread tractors:

$90 \pm 10/-3$ mm ($3.54 \pm 0.4/-0.2$ in.)*.

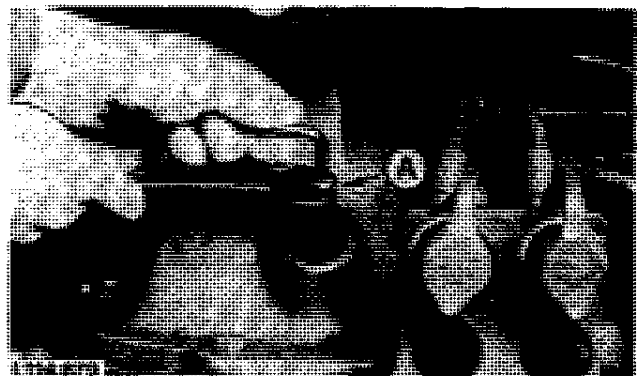
Lift arms must only now start to rise and must be fully raised before end of slot.

* Measured at upper edge of quadrant



L115510, L119664, L118896-LB37015AE-010888

If lift arms start to rise early, then turn adjusting screw counter-clockwise with special tool JDG402 (A) until lift arms are lowered. Then turn adjusting screw clockwise until lift arms just start to rise. Tighten adjusting screw lock nut.

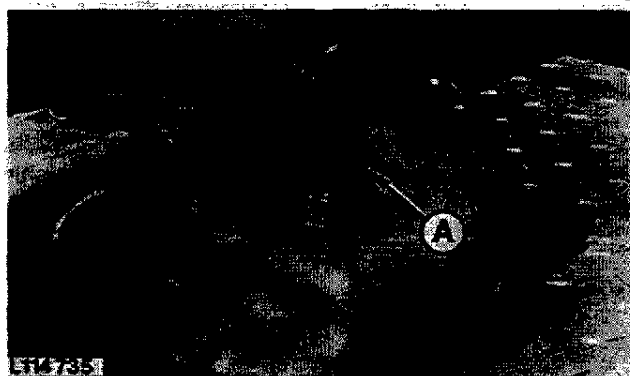


L114679-LB37015AE-010287

Rockshaft

RATE-OF-DROP ADJUSTMENT

Rate-of-drop should not be less than 2 seconds. To increase rate-of-drop, turn out rate-of-drop screw (A) and turn inward to reduce.



L114735-LB27015AE-010886

LOAD-AND-DEPTH FUNCTIONAL TEST

Move selector lever (A) to center position (load-and-depth). Shift rockshaft control lever (B) over complete range. Lift arms must thereby lift and lower completely.



L114741-LB27015AE-000886

GENERAL FUNCTIONAL TEST

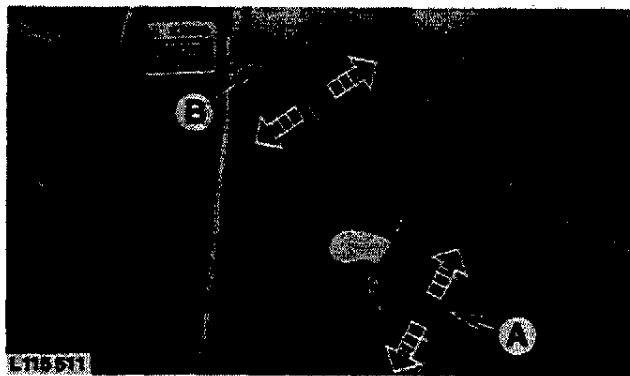
Move rockshaft control lever (B) forward to "LOWER" position.

Move selector lever (A) from "MAX" to "MIN" and back to "MAX".

Move control lever to the rear to "RAISE" position.

Move selector lever from "MAX" to "MIN" and back to "MAX".

The lift arms should not move when moving load selector lever from "MAX" to "MIN" and back to "MAX".

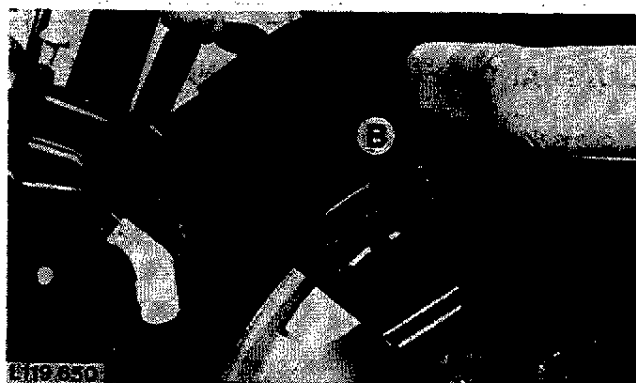
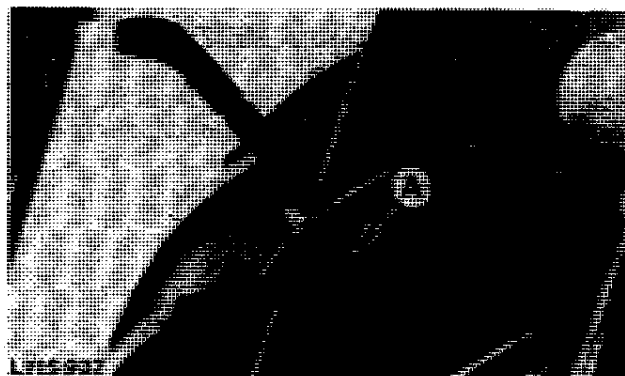


L115511-LB37015AE-010287

ADJUSTING MOVEMENT OF SELECTOR LEVER

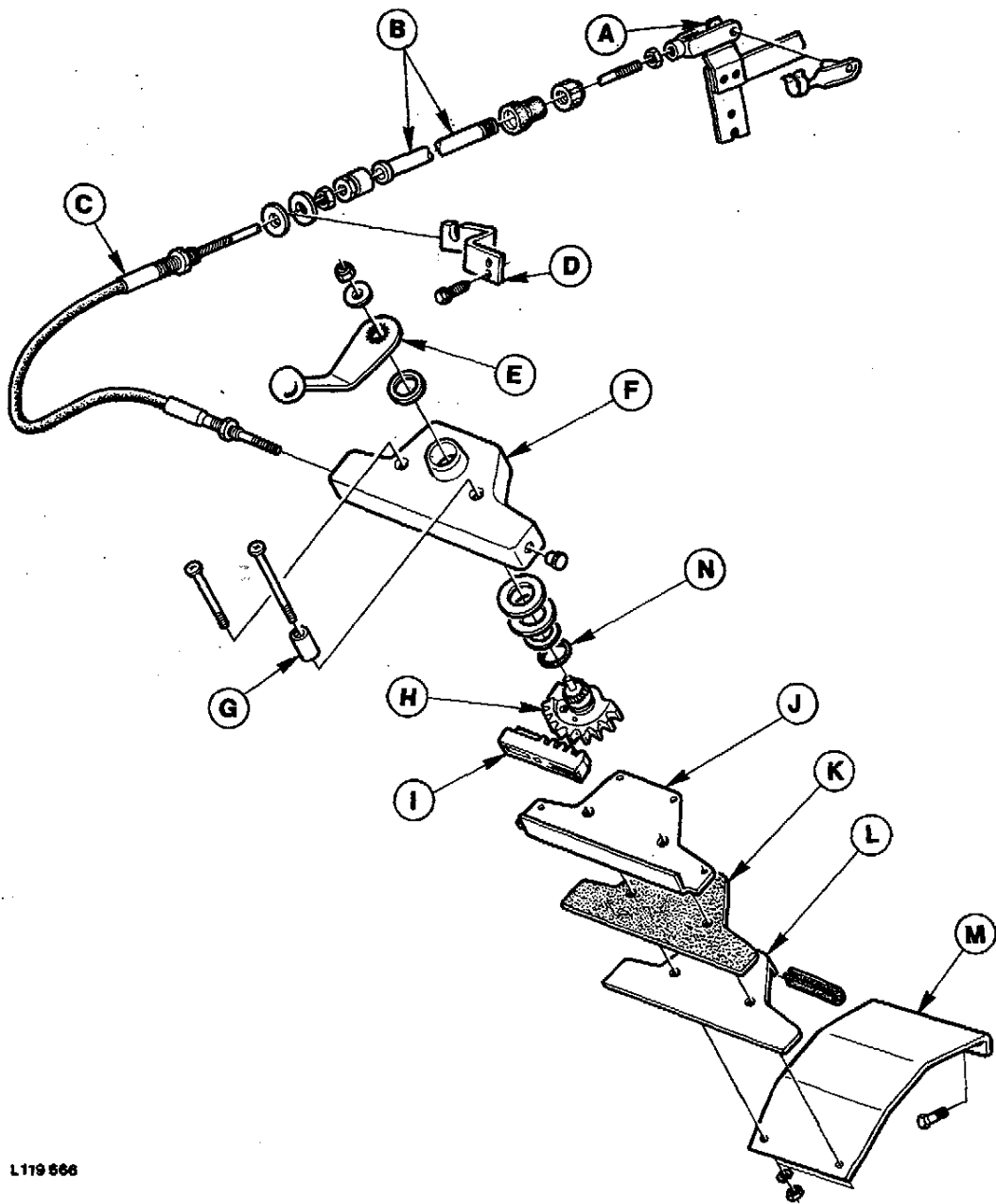
Vibration should not cause control lever to change its position when operating. If this is the case, add a shim to guide pin* (A) or tighten hex. nut** (B).

- * On earlier tractor series
- ** On later tractor series



L115937, L119650-LB27015AE-010488

ROCKSHAFT REMOTE CONTROL, EXPLODED VIEW



L119 666

A-Link
B-Shaft joint
C-Remote control cable
D-Bracket
E-Lever

F-Housing
G-Stop bushing
H-Toothed segment
I-Rack
J-Cover

K-Gasket
L-Console
M-Console
N-O-ring*

* On later tractor series

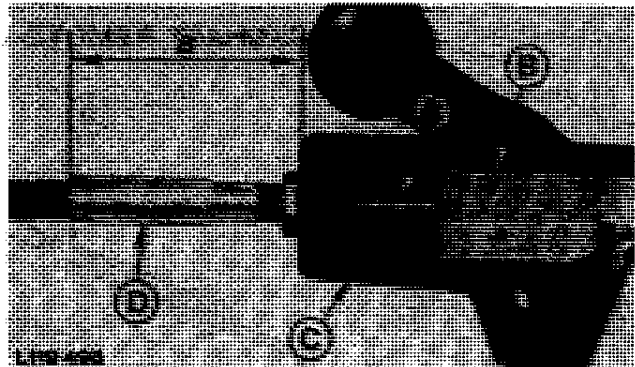
L119666-LB37015AE-010888

INSTALLING REMOTE CONTROL CABLE

Screw cable inner part (A) completely into rack (B).
Screw cable sleeve (D) up to a clearance of 50 mm (1.97 in.) on earlier tractor series or 35 mm (1.38 in.) on later tractor series (see measurement "a") into housing (C) and tighten lock nut.

A—Cable inner part
B—Rack

C—Housing
D—Cable sleeve



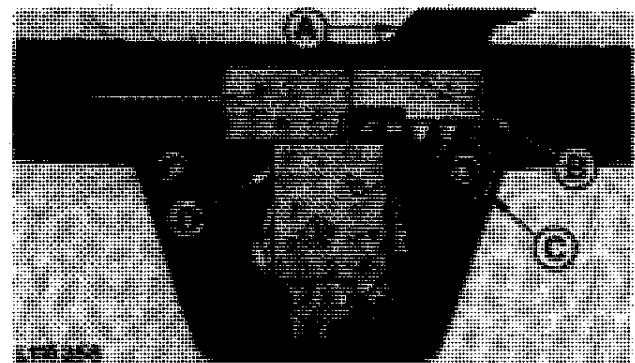
L119498-LB27015BE-010488

INSTALLING REMOTE CONTROL UNIT

Insert rack (B) with plate (D) in vertical position.
In this position insert lever (A) to a point where it will contact stop (C) which is installed later.
Install cover.

A—Lever
B—Rack

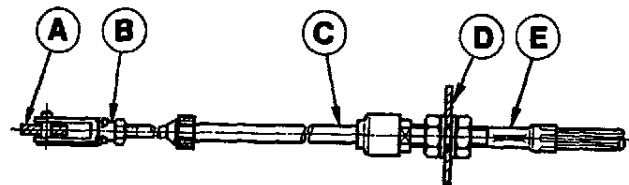
C—Stop
D—Plate



L115368-LB37015BE-010287

ADJUSTING REMOTE CONTROL CABLE

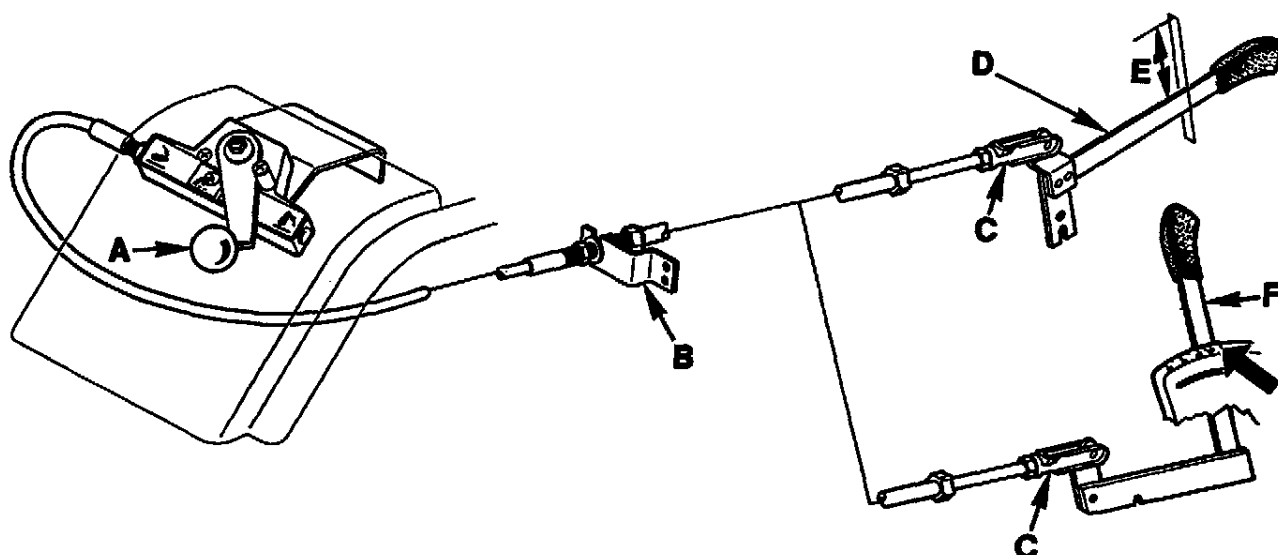
Attach remote control unit to fender with bracket.
Install shaft joint (C).
Attach counterlocked fork end (B) to control lever (A).
Attach cable (E) to bracket (D).



L 115930

L115930-LB37015AE-010287

ADJUSTING AND CHECKING ROCKSHAFT REMOTE CONTROL



L 119 667

A-Remote control lever
B-Bracket

C-Fork
D-Control lever

E-Clearance
F-Control lever

After correct rockshaft adjustment and installation of remote control, position remote control lever (A) in the right-hand end position (RAISE) and hold in this position.

Up To Tractor Serial No. 637 600L

In the cab, clearance (E) between rear edge of control lever (D) and rear end position must be 60 to 70 mm (2.36 to 2.76 in.).

From Tractor Serial No. 637 601L

In the cab, front edge of control lever must be between marks "3.2" and "3.5" (see arrow).

Adjust by turning fork end (C) in or out, or by adjusting hex. nuts of bracket (B).



CAUTION: With selector lever in position "MIN", the lift arms should not rise to the upper end position when remote control lever is in position "RAISE".

With selector lever in position "MAX", the lift arms should not rise when remote control lever is in position "RAISE".

NOTE: Always recheck and readjust rockshaft remote control whenever parts have been replaced.

L119667-LB37015AE-010898

REMOVING AND INSTALLING FRONT HITCH

See Section 10, Group 25, for removal and installation of front hitch.

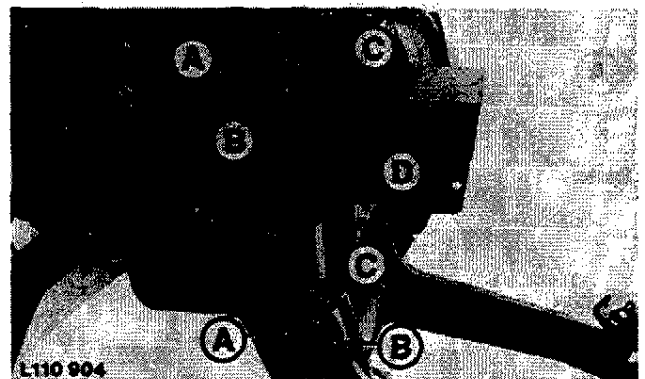
FKRAFTH-E-LA77020AE-120385

REMOVING LIFT CYLINDER

Remove cap screws (A), links (B) and pins (C).
Replace complete lift cylinder assembly.

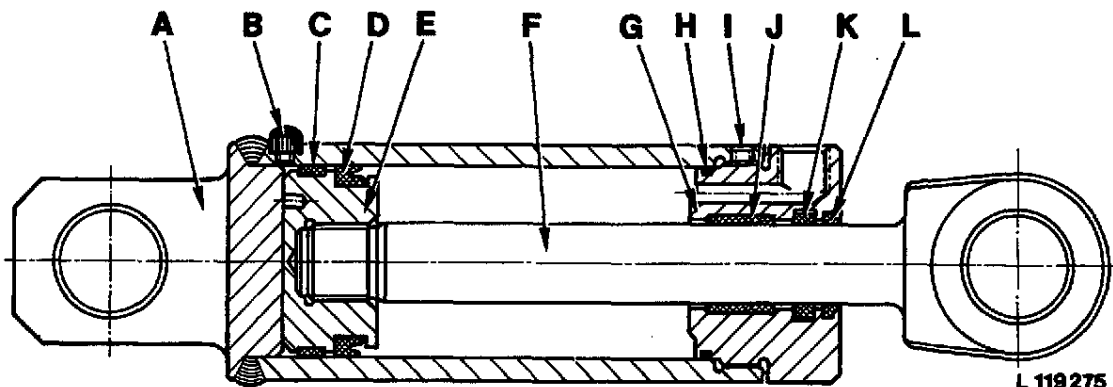
A-Cap screws (4 used)
B-Links (2 used)

C-Pins (2 used)
D-Lift cylinder assy.



L110904-LB37020AE-010686

LIFT CYLINDER, SECTIONAL VIEW



A-Cylinder
B-Vent
C-Guide band

D-Piston seal ring
E-Piston
F-Piston rod

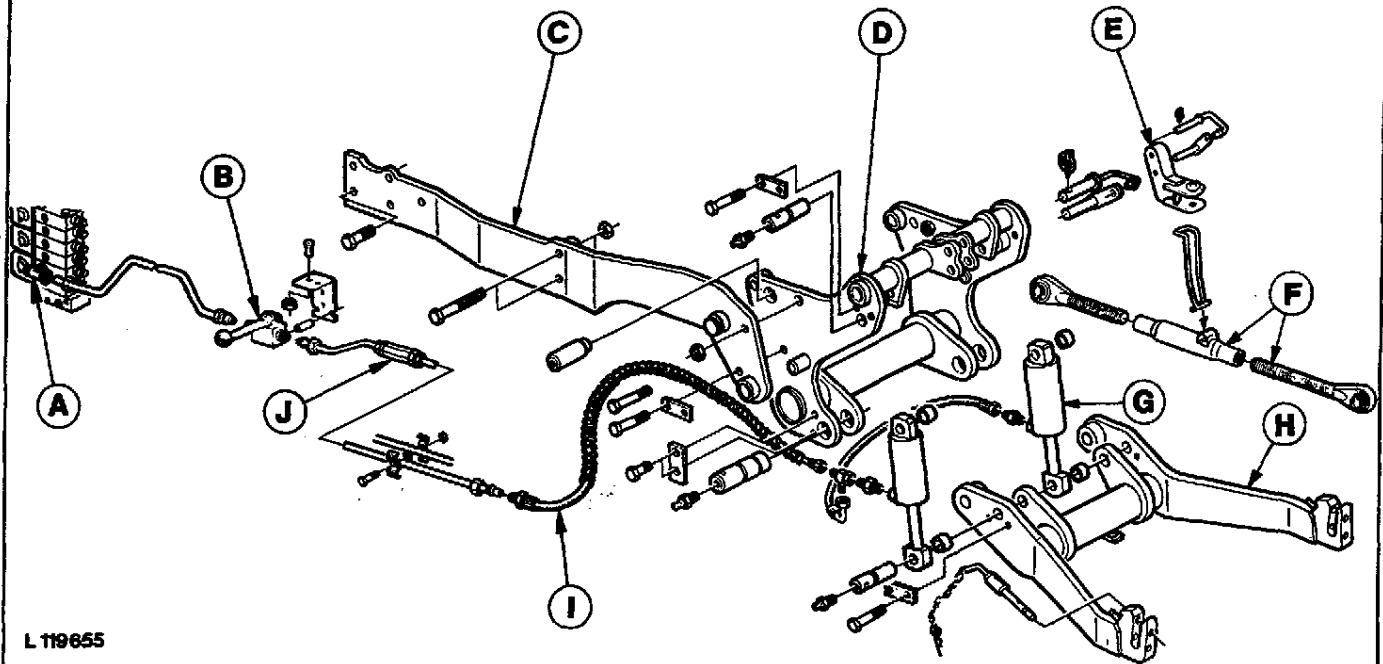
G-Piston rod guide
H-O-ring
I-Lock screw

J-Guide band
K-Piston rod seal ring
L-Scraper ring

NOTE: Coat threads with LOCTITE 242 (L41475)
when assembling the lift cylinder.

L119275-LB27020AE-000488

FRONT HITCH, EXPLODED VIEW



L 119655

A-T-piece
B-Shut-off cock
C-Side frame (2 used)

D-Center piece
E-Pushing attachment
F-Center link

G-Lift cylinder
H-Draft link
I-Pressure or return hose
J-Restriction orifice*

* With 40 cm³ (2.4 cu.in.) hydraulic pump

L119655-LB27020AE-000488

Group 25 SELECTIVE CONTROL VALVES – SPOOL TYPE

SPECIFICATIONS

Dimensions of New Parts

O.D. of valve spool at V-packing area	9.96 to 10.00 mm (0.388 to 0.390 in.)
Valve spool spring:	
– Free length	approx. 26 mm (1.02 in.)
– Spring tension at a length of 15 mm (0.59 in.)	210 to 260 N (49 to 58 lb)
Detent spring:	
– Free length	approx. 30 mm (1.18 in.)
– Spring tension at a length of 17 mm (0.7 in.)	170 to 210 N (38 to 46 lb)

SCVS-LB47020AE-010687

TORQUES FOR HARDWARE

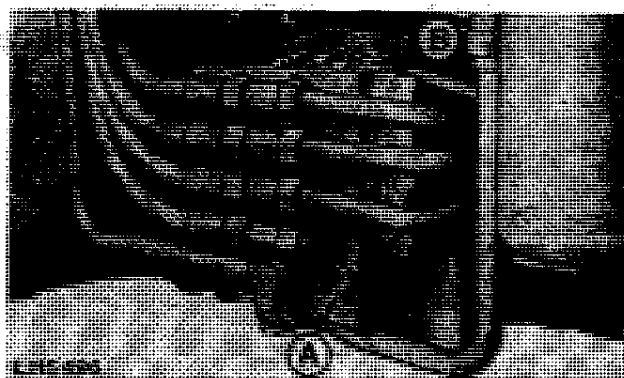
Selective control valve to rockshaft manifold, cap screws	20 Nm (14 ft-lb)
End cover to valve housing, hex. socket screws	15 Nm (11 ft-lb)
Rockshaft manifold to bracket, cap screws	50 Nm (35 ft-lb)

SCVS-LB37025BE-000267

REMOVING SELECTIVE CONTROL VALVES

Tractors With SG2 Cab

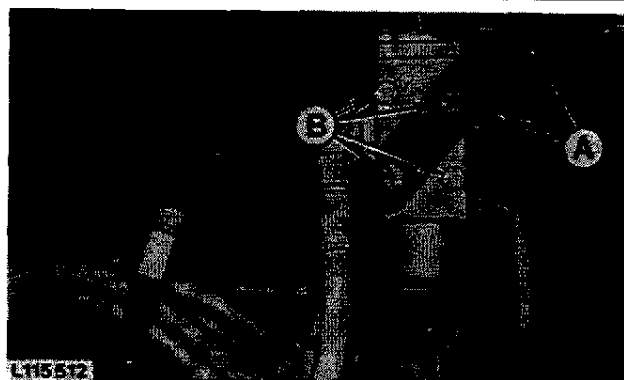
Disconnect hydraulic hoses and lines.
Remove cap screws (A) and selective control valves.
Remove cap screws (B).



L115496-LB37025AE-010287

Tractors With MC1 cab

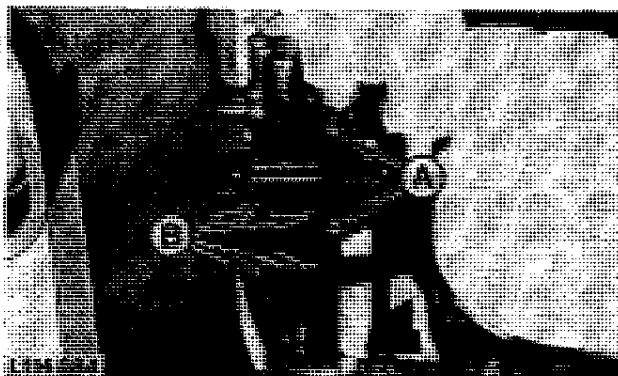
See "Tractors with SG2 cab" for sequence of removal.



L115512-LB37025AE-010287

Tractors Without Cab

See "Tractors with SG2 cab" for sequence of removal.



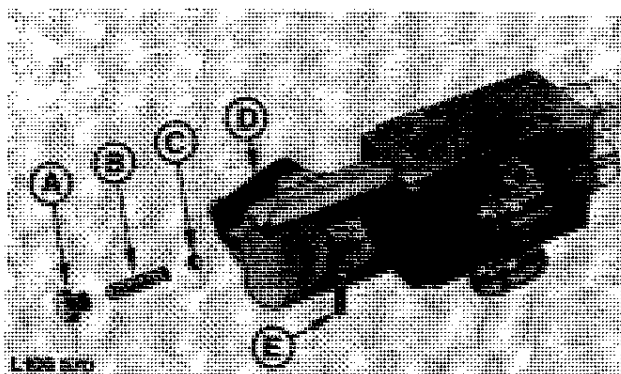
L114884-LB37025AE-010287

REMOVING PINION SHAFT

Drive out spring pin (E).
Remove plug (A) and take out spring (B) and ball (C).
Remove pinion shaft (D).

A-Plug
B-Spring
C-Ball

D-Pinion shaft
E-Spring pin



L108570-LA77025AE-291184

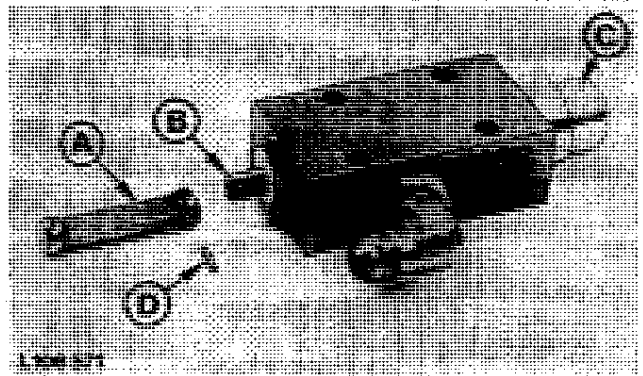
REMOVING VALVE SPOOL

Remove pin (D) from rack (A).
Remove spring cap (C) and valve spool (B).

IMPORTANT: Always install valve spool in original housing.

A–Rack
B–Spool

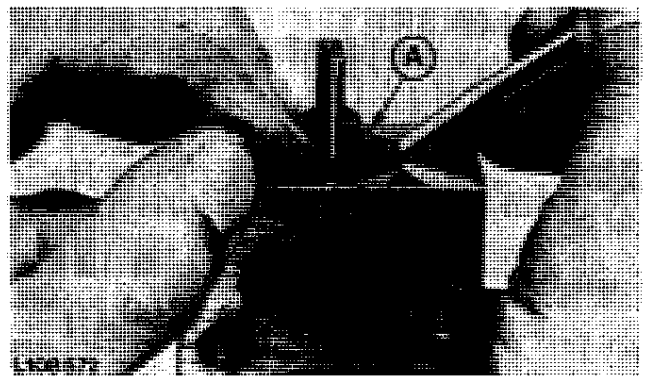
C–Spring cap
D–Pin



L108571-LA77025AE-001184

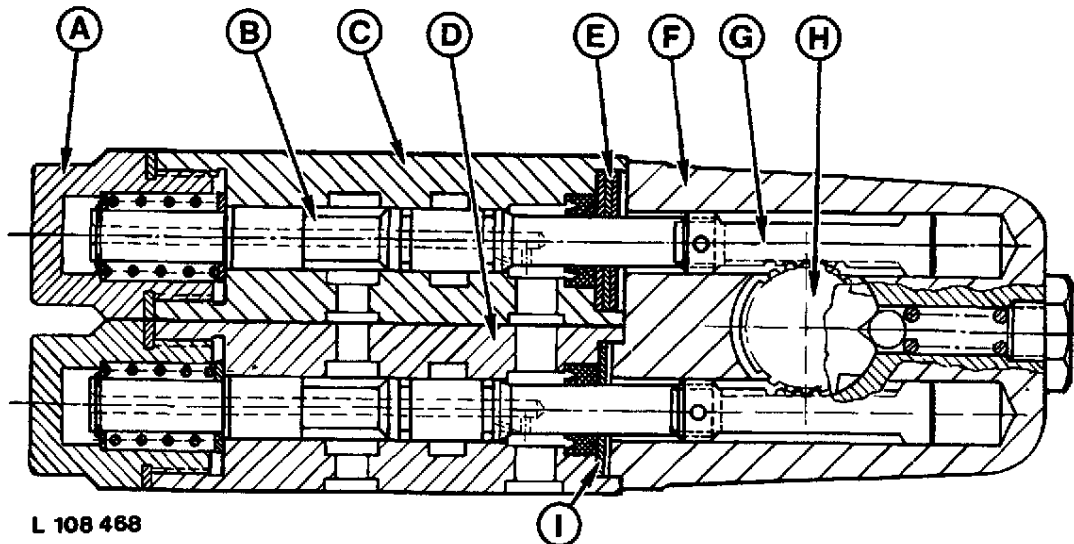
REPLACING V-PACKING

Fit a new V-packing (A) with sealing lips facing inwards.



L108572-LA77025AE-291184

SELECTIVE CONTROL VALVE, SECTIONAL VIEW (Double-Acting)



L 108 468

A–Spring cap
B–Spool
C–Valve housing (closed on one side)

D–Valve housing (open on both sides)
E–Spacer washers (3 used)
F–End cover

G–Rack
H–Pinion shaft
I–Spacer washer (1 used)

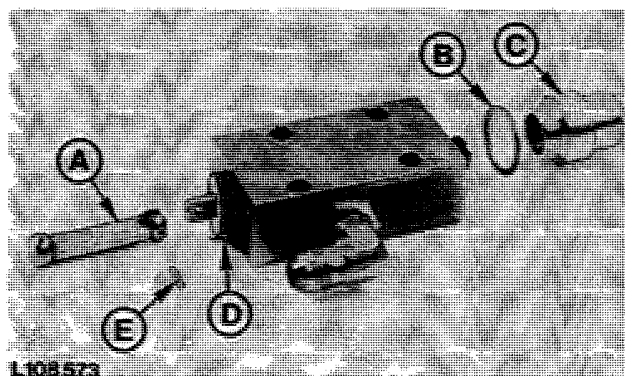
L108468-LB37025AE-010287

ASSEMBLING SELECTIVE CONTROL VALVE

Coat rack (A) with JOHN DEERE EP multipurpose grease.
In double-acting valves, teeth of top and bottom racks must face each other.

A–Rack
B–Seal ring
C–Spring cap

D–Washer (3 used)
E–Pin

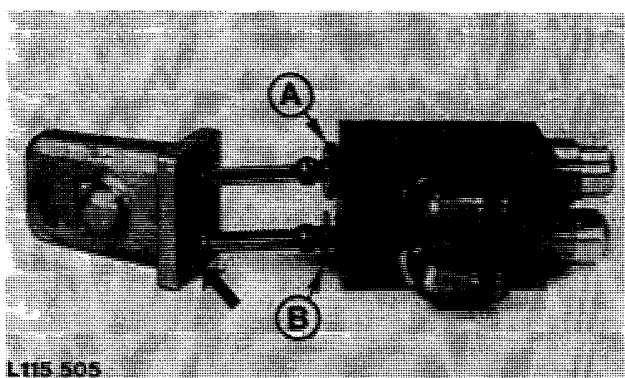


L108573

L108573-LB37025AE-010287

Install one washer (B) opposite shoulder of end cover (see arrow) and install three washers (A) opposite flat cover face.

NOTE: Single-acting selective control valves only have one rack and one spool.



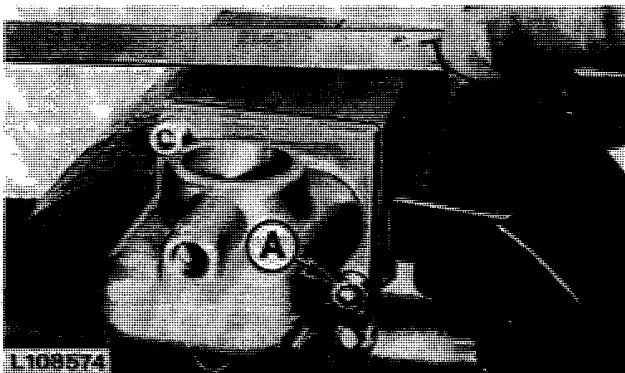
L115 505

L115505-LB37025AE-010287

FITTING END COVER

Clamp both valves in a vice and align with a ruler as shown.

Tighten hex. socket screws (A) to 15 Nm (11 ft-lb).



L108574

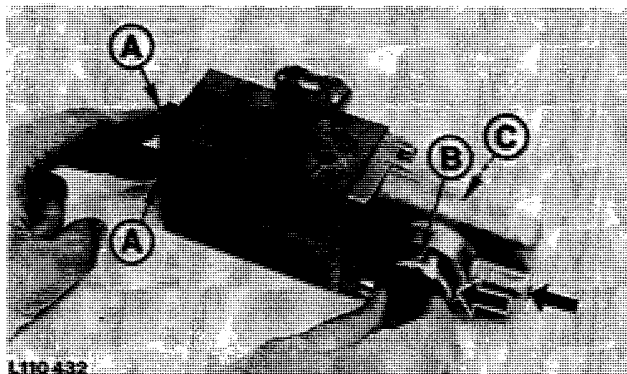
L108574-LB37025AE-010287

INSTALLING PINION SHAFT

Install spool (A) so that washer is against shoulder of valve housing.

Coat pinion shaft (B) with JOHN DEERE EP multi-purpose grease and install so that both bores (see arrows) are aligned.

Drive in spring pin (C) with slotted side facing away from pinion shaft.



L110432

L110432-LB37025AE-010287

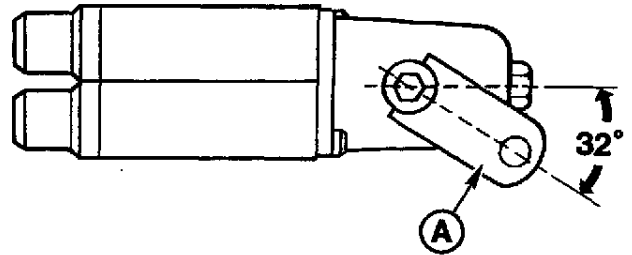
Selective Control Valves – Spool Type

ADJUSTING LEVER

Tractors With SG2 Cab

Install lever (A) so that it points downwards 32° in neutral position.

NOTE: On tractors not equipped with an SG2 cab the control lever is installed in line with the selective control valve.



L109 450

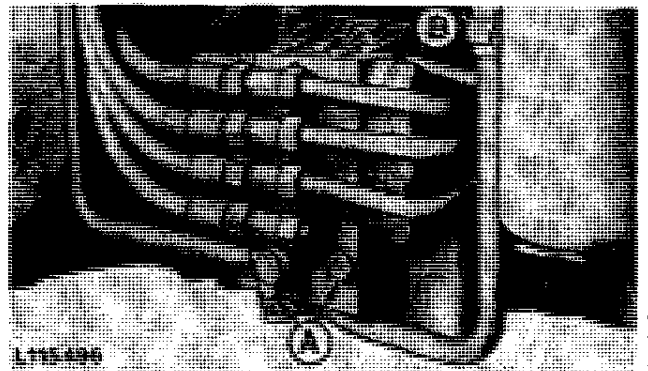
L109450-LB27025AE-010886

INSTALLING SELECTIVE CONTROL VALVES

Tractors With SG2 Cab

Tighten four cap screws (B) to 20 Nm (14 ft-lb).
Tighten both cap screws (A) to 50 Nm (35 ft-lb).

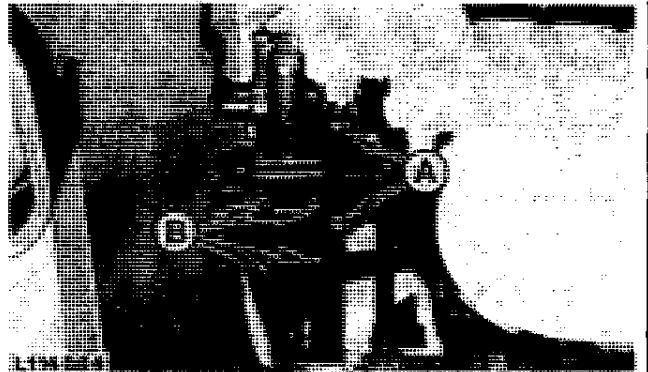
Connect hydraulic hoses and lines.



L115496-LB37025BE-000287

Tractors Without Cab

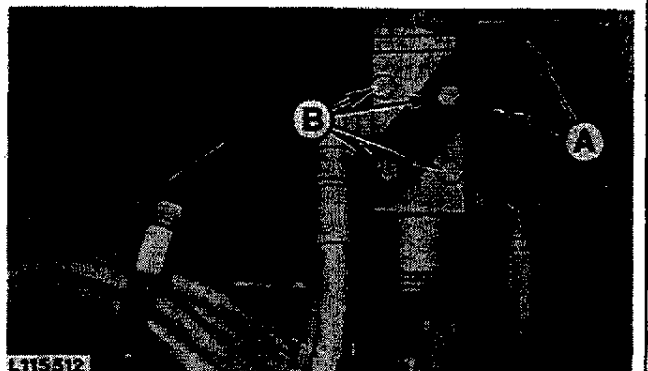
See "Tractors With SG2 Cab" for sequence of installation.



L114584-LB27025AE-010488

Tractors With MC1 Cab

See "Tractors With SG2 Cab" for sequence of installation.

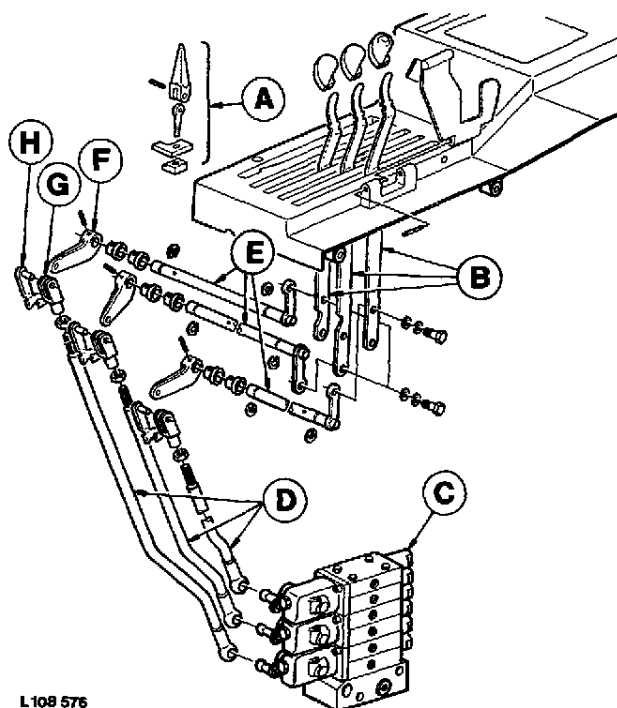


L115512-LB37025BE-010287

INSTALLING CONTROL LEVER LINKAGE (WITH SG2 CAB)

Install linkage according to number of selective control valves.

- A—Stop (for hydraulic motor operation)
- B—Control lever
- C—Selective control valves
- D—Connecting rods
- E—Lever shafts
- F—Lever
- G—Fork end
- H—Safety strap

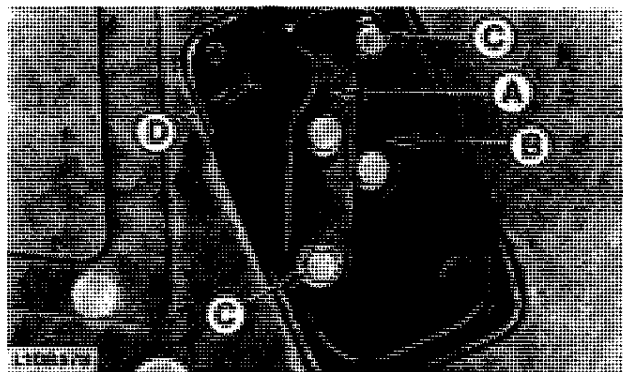


L108576-LB27025AE-010488

INSTALLING LEVER SHAFTS (WITH SG2 CAB)

Install lever shafts through service opening in cab side panel.

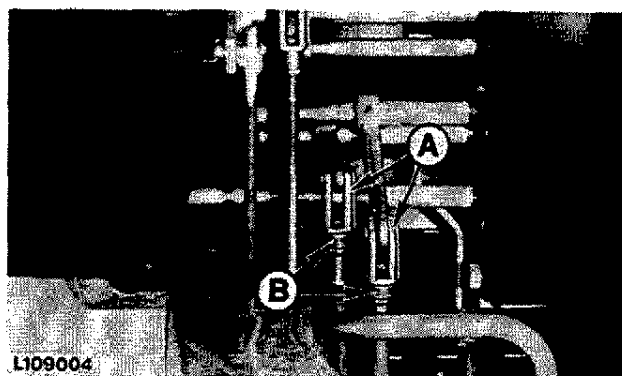
- A—Control lever
- B—Control lever
- C—Cap screw
- D—Bore for third lever shaft



L108578-LB27025AE-010488

ADJUSTING CONTROL LEVER LINKAGE (WITH SG2 CAB)

Adjust fork ends (A) so that control levers are in center of control lever console when selective control valves are in center position.



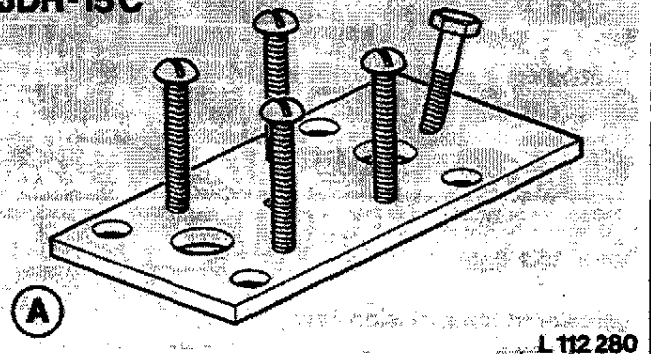
L109004-LB27025AE-010488

Group 30 **SELECTIVE CONTROL VALVES – POPPET VALVE TYPE**

SPECIAL TOOLS

A—Adjusting selective control valves

JDH-15C



L 112 280

L112280-LB27030AE-000886

SPECIFICATIONS

Flow control valve spring	
– Free length	approx. 47 mm (1.85 in.)
– Spring tension at a length of 39 mm (1.53 in.)	160 to 195 N (36 to 44 lb)
Pressure valve spring (red)	
– Free length	approx. 44 mm (1.72 in.)
– Spring tension at a length of 31 mm (1.2 in.)	160 to 195 N (36 to 44 lb)
Return valve spring (green)	
– Free length	approx. 39 mm (1.53 in.)
– Spring tension at a length of 31 mm (1.2 in.)	80 to 100 N (18 to 22 lb)
Cam detent follower spring	
– Free length	approx. 19 mm (0.75 in.)
– Spring tension at a length of 8 mm (0.31 in.)	58 to 71 N (13 to 16 lb)
Inner detent cartridge spring	
– Free length	approx. 19.4 mm (0.76 in.)
– Spring tension at a length of 14 mm (0.56 in.)	89 to 108 N (20 to 24.4 lb)
Outer detent cartridge spring	
– Free length	approx. 35 mm (1.38 in.)
– Spring tension at a length of 26 mm (1.02 in.)	51 to 62 N (11.5 to 14 lb)
Length of flow control valve stop	24 mm (0.94 in.)

SCVP-LB37030AE-010287

TORQUES FOR HARDWARE

Both covers to selective control
valve, cap screws 50 Nm (35 ft-lb)

Selective control valve to
bracket, cap screws 50 Nm (35 ft-lb)

With SG2 Cab

Bracket to transmission case,
cap screws 50 Nm (35 ft-lb)

Without Cab

Bracket to final drive housing,
cap screws 120 Nm (85 ft-lb)

SCVP-LB37030BE-010257

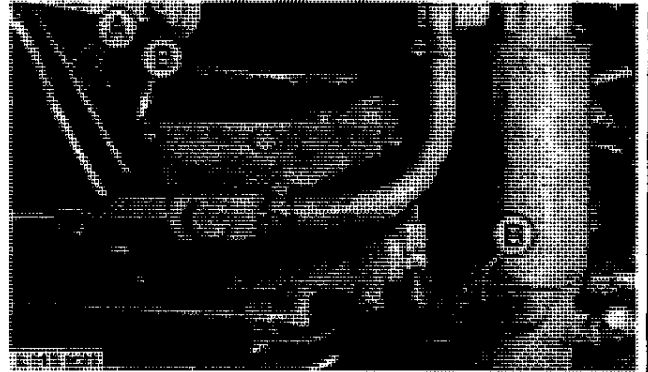
REMOVING SELECTIVE CONTROL VALVE

Tractors With SG2 Cab

Disconnect hydraulic lines and connecting rods (A) at selective control valve.

Remove cap screws (B).

NOTE: Should selective control valve be marked R65504, see Technical Manual "40 Series Tractors" for further details.



L115931-LB27030AE-010488

Tractors Without Cab

Disconnect hydraulic lines and connecting rods (A) at selective control valve.

Remove cap screws (B).



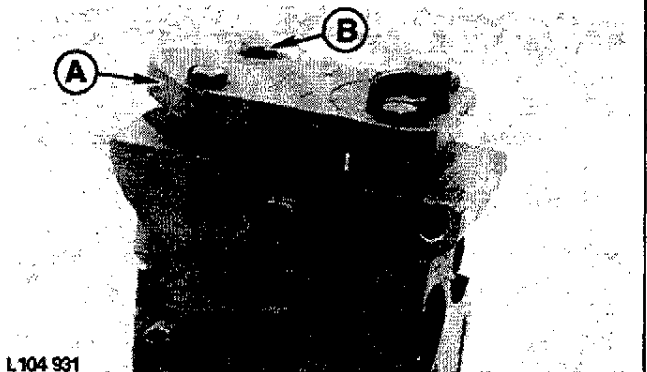
L115932-LB27030AE-010488

DISASSEMBLING SELECTIVE CONTROL VALVE



CAUTION: Poppet valve springs are under pressure. Remove cover carefully. If springs catch in the housing, valve guides can shoot out with considerable force.

Remove cap screws (B) and cover (A).



L104 931

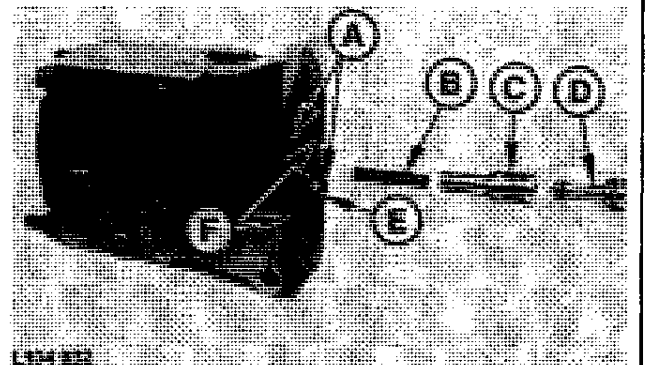
L104931-LB37030AE-010287

REMOVING FLOW CONTROL VALVE

Remove flow control valve stop (D), flow control valve (C), spring (B) and valve guide (E).

A-Return valves
B-Spring
C-Flow control valve

D-Flow control valve stop
E-Valve guides
F-Pressure valves



L104 932

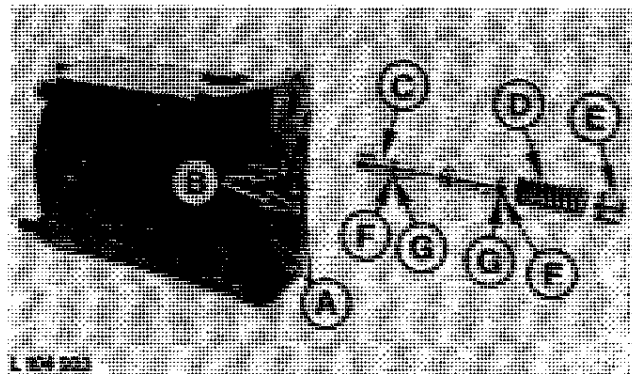
L104932-LB27030AE-010886

REMOVING PRESSURE AND RETURN VALVES

NOTE: Valves and springs must be reinstalled in their original bores.

A-Pressure valves
B-Return valves
C-Valve
D-Spring

E-Guide
F-Back-up ring
G-O-ring



L104933-LB37030AE-010287

REMOVING DETENT PIN

To remove detent pin and relevant parts, press guide (A) in bore and remove snap ring (B). Pull spring and guide out of bore.



L104934-LB27030AE-010886

REMOVING DETENT CARTRIDGE

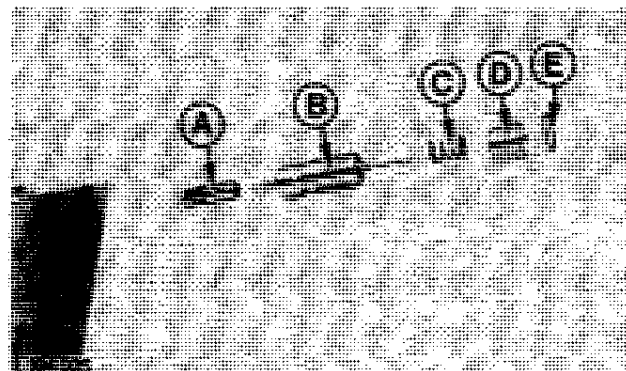
NOTE: Should detent piston stick with guide removed, remove rocker assembly and push detent pin.

Pull cam follower (A) out of housing.

NOTE: Removing the rocker assembly makes removal easier.

A-Cam follower
B-Detent cartridge
C-Spring

D-Detent guide
E-Snap ring



L104935-LB27030AE-010886

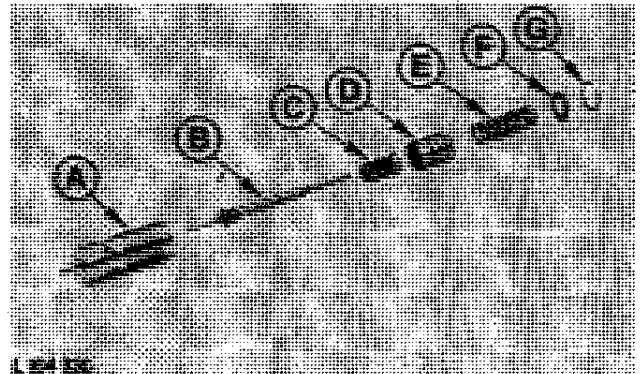
DISASSEMBLING DETENT CARTRIDGE



CAUTION: Snap ring and washer are under high spring pressure and can shoot out with considerable force.

A—Detent cartridge
B—Detent pin
C—Spring
D—Detent piston

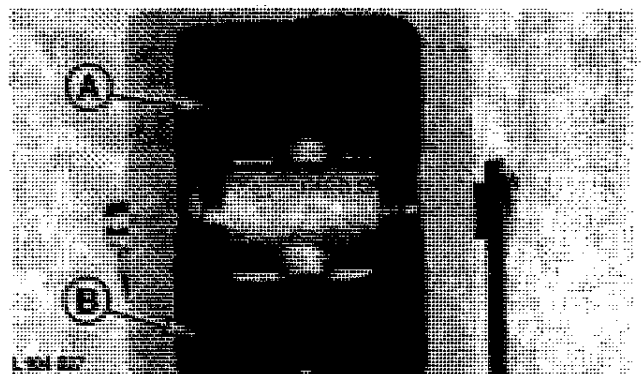
E—Spring
F—Washer
G—Snap ring



L104936-LB37030AE-010287

REMOVING ROCKER ASSEMBLY

Press rubber keepers (B) down from the special adjusting screws (A).

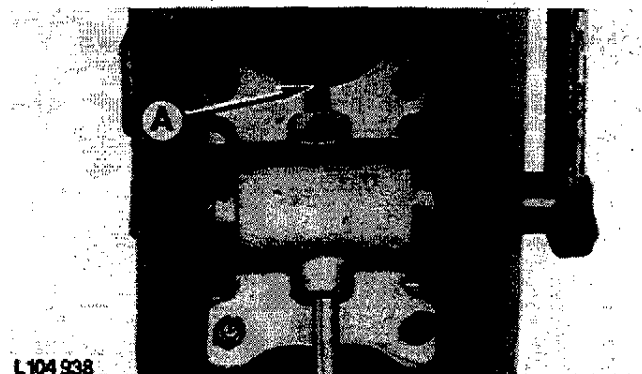


L104937-LB27030AE-010886

Remove adjusting screws.

Mark position of rocker assembly.

Turn lever shaft slightly and drive out spring pin (A).

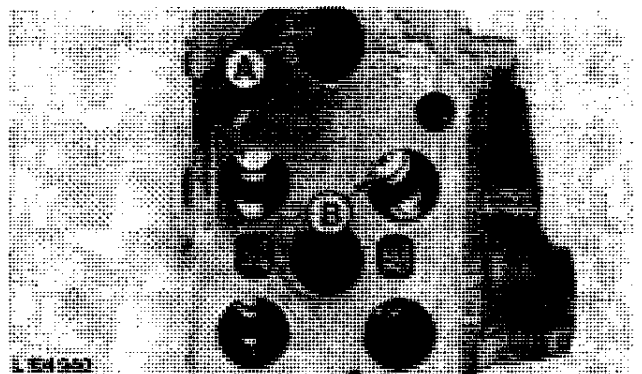


L104938

L104938-LB27030AE-010488

INSPECTING VALVE SEATS

IMPORTANT: Do not grind valve seats. When necessary, polish seats only.



L104940

L104940-LB27030AE-010886

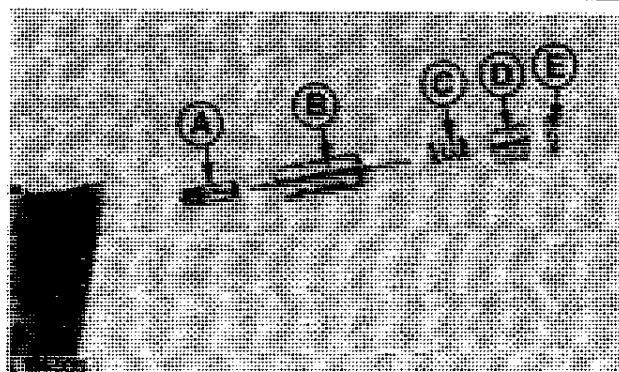
INSTALLING DETENT CARTRIDGE

Install preassembled detent cartridge (B).
Install detent spring (C), guide (D) and snap ring (E).

Cam follower (A) must be installed later.

A—Cam follower
B—Detent cartridge
C—Spring

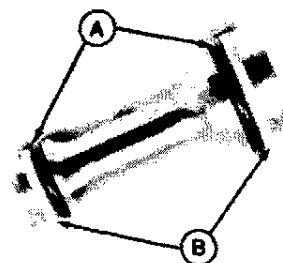
D—Guide
E—Snap ring



L104835-LB27030BE-000886

OVERHAULING FLOW CONTROL VALVE STOP

Install new O-rings (A) and back-up rings (B).

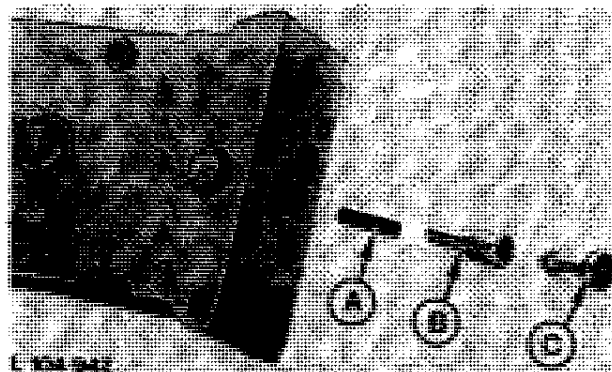


R36007

R36007-LB27030AE-000886

INSTALLING FLOW CONTROL VALVE

Install flow control valve spring (A), flow control valve (B) and flow control valve stop (C).



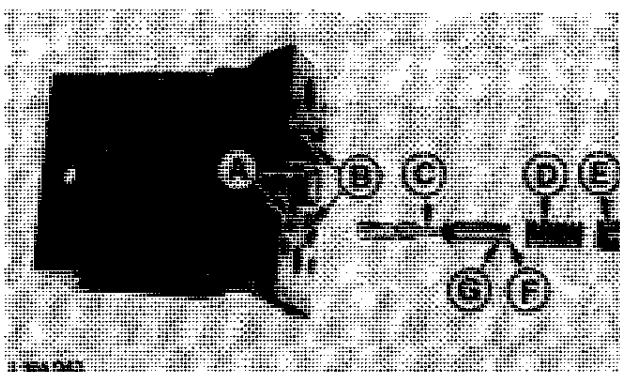
L104942-LB27030AE-010886

INSTALLING PRESSURE AND RETURN VALVES

NOTE: Springs are colour coded, red for pressure and green for return valves.

A—Pressure valves
B—Return valves
C—Valve
D—Spring

E—Guide
F—Back-up ring
G—O-ring



L104943-LB27030AE-000886

INSTALLING COVER

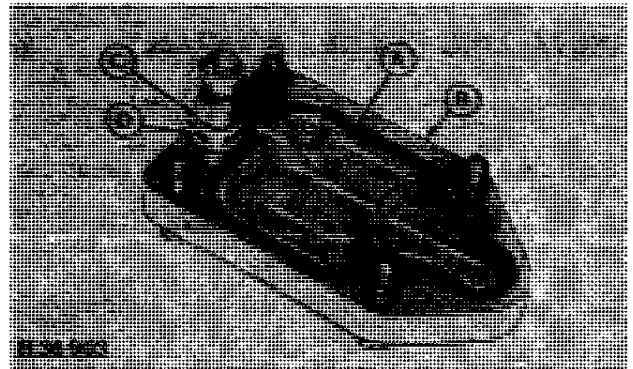
Tighten cap screws to 50 Nm (35 ft-lb).

A-Gasket

B-Cover

C-O-ring

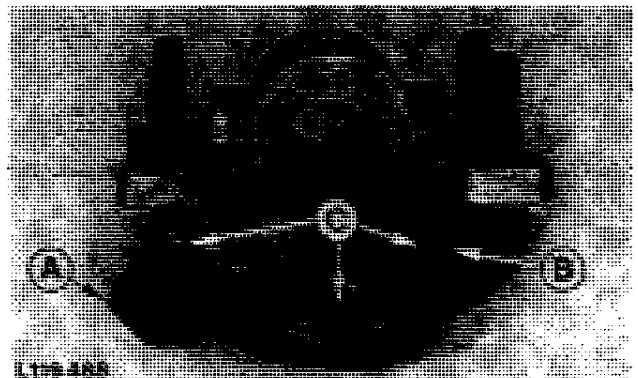
D-Backup ring



R36903-LB27030AE-010886

ASSEMBLING ROCKER ASSEMBLY

Install detent cam (A) in rocker (B) and insert special pins (C).



L119488-LB27030AE-010488

Position float cam (B) as well as cam for retract and extend (A).

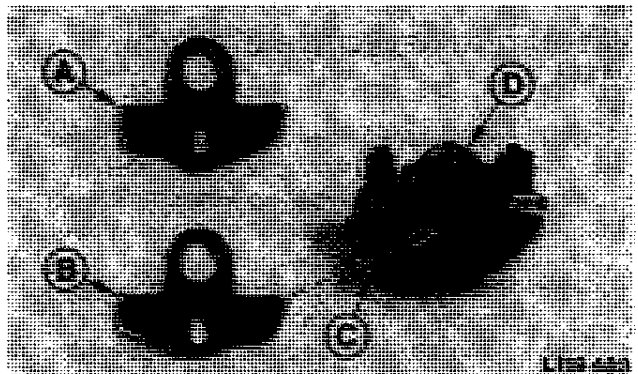
NOTE: Do not mix up cams.

A-Cam for retract and extend

B-Float cam

C-Detent cam

D-Rocker



L119483-LB27030AE-010488

INSTALLING DETENT CAM FOLLOWERS

Insert cam followers (B) and slide rocker shaft assembly partly into housing.



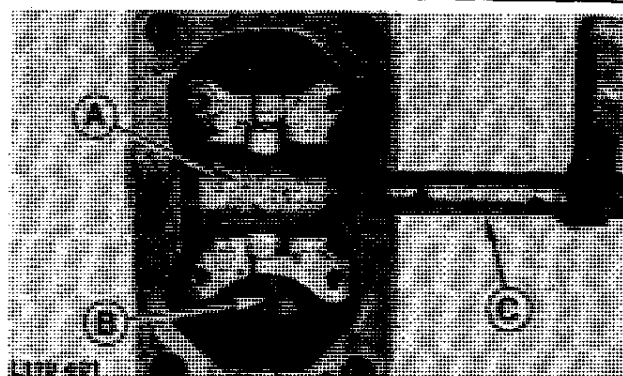
R36012-LB27030AE-010886

INSTALLING ROCKER ASSEMBLY

Note position of rocker assembly (A) with cam (B).

Slide shaft (C) completely through rocker assembly.

- A—Rocker assembly
- B—Cam
- C—Shaft



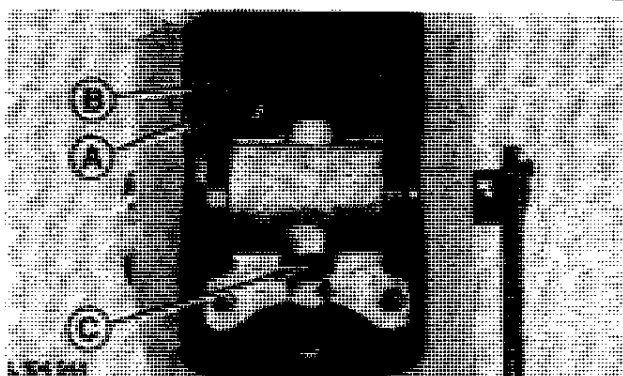
L119491-LB27030AE-010488

INSTALLING SPRING PIN

Install keepers (A) on cam adjusting screws (B).

NOTE: If cam adjusting screws were removed, install until just through rocker.

- A—Rubber keeper
- B—Cam adjusting screw
- C—Spring pin



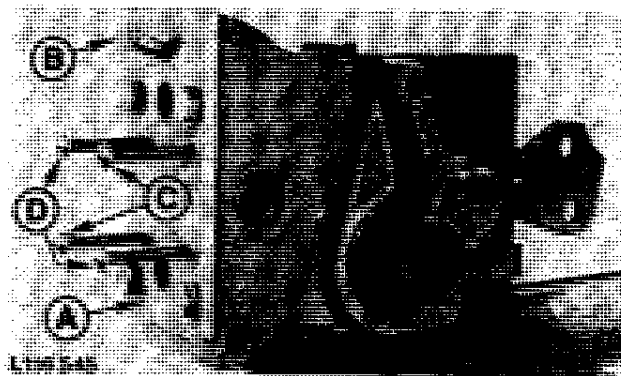
L104944-LB27030AE-010886

ADJUSTING SELECTIVE CONTROL VALVE

Remove cover, valve guides and valve springs from selective control valve. Attach special tool JDH-15C to selective control valve, installing washers between housing and tool. Clamp valve in a vice as shown.

NOTE: With the selective control valve in neutral, pressure and return valves are adjusted by setting a specified clearance between operating cams and valve rollers. This clearance insures that return valves open before pressure valves and thus has a maximum oil flow through the selective control valve.

- A—Special tool JDH-15C
- B—Detent piston screw
- C—Pressure valve screw
- D—Return valve screw



L118545-LB37030AE-010287

Selective Control Valves – Poppet Valve Type

Hand tighten detent piston screw (A) and shift rocker to neutral position.

NOTE: Moving lever slightly back and forth will aid in finding neutral position. Make sure neutral position is obtained.

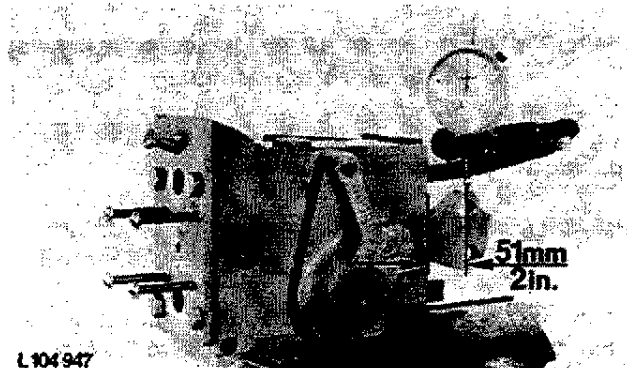
Hand tighten the four valve adjusting screws (B) so that the valves are pressed on their seats.



L104946-LB27030AE-000984

Install a dial indicator as shown. Dial indicator should contact lever 51 mm (2 in.) from center of lever shaft on the control lever. Set indicator to "zero" (detent cam in neutral).

IMPORTANT: Indicator readings should be made from "zero". Therefore do not readjust indicator.

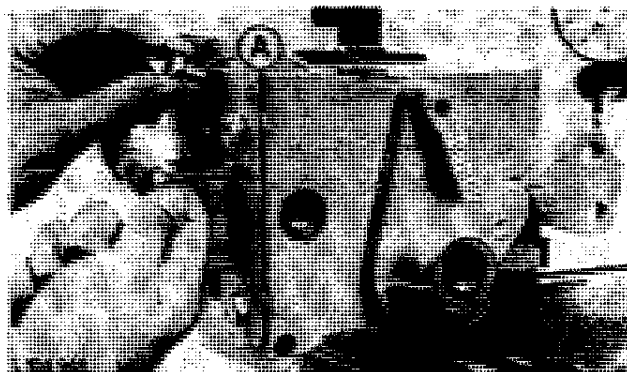


L104947

L104947-LB27030AE-010895

Back out detent screw (A) and the two right-hand valve adjusting screws.

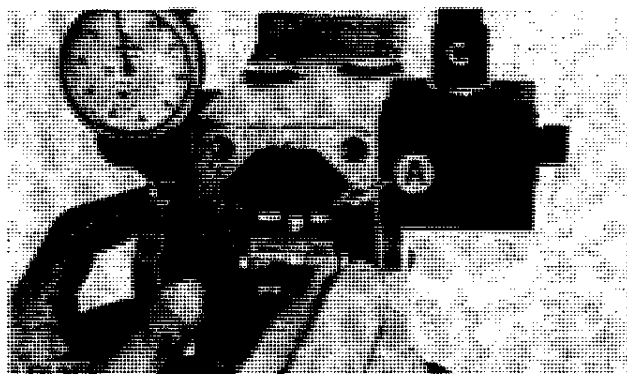
IMPORTANT: Selective control valves can only be adjusted one side at a time.



L104948-LB27030AE-100984

Adjust valves on left-hand side of selective control valve. Tighten screws "hand-tight" only. Turn cam adjusting screw (A) on return valve to obtain a reading of 0.5 to 0.8 mm (0.020 to 0.030 in.) from zero.

NOTE: Turn adjusting screw in to decrease, or out to increase clearance.

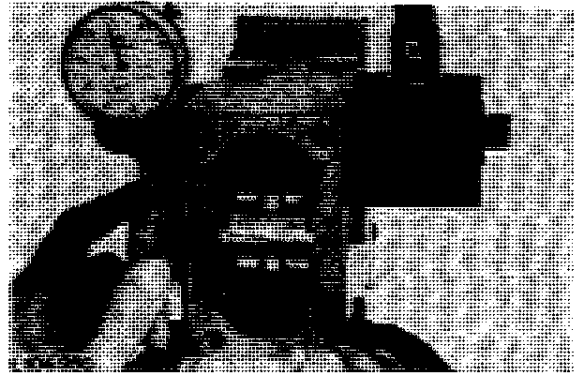


L104949-LB37030AE-010287

Selective Control Valves – Poppet Valve Type

Adjust pressure valve on left-hand side. To do this turn relevant adjusting screw in or out until the dial indicator shows a reading of 1.5 to 1.8 mm (0.060 to 0.070 in.).

After correct adjustment of valves on left-hand side, unscrew screws on left-hand side of adjusting cover and tighten the right-hand screws.



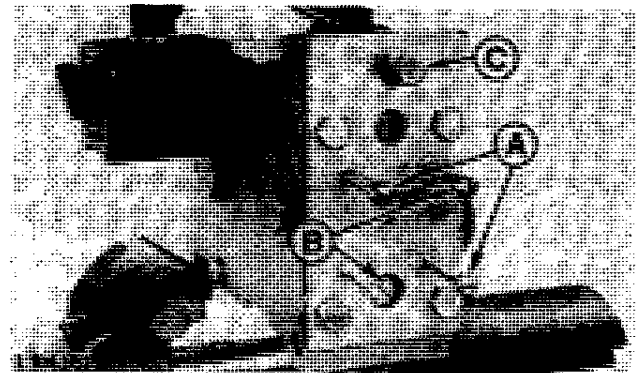
L104950-LB37030AE-010287

IMPORTANT: Do not adjust dial indicator in any way to alter "zero" position.

Tighten screw (C) to assure that dial indicator "zero" position has not been altered.

IMPORTANT: The pressure valves (B) and return valves (A) are positioned diagonally.

Back out screw (C) again and adjust return valve so that dial indicator shows reading of 0.5 to 0.8 mm (0.020 to 0.030 in.). Adjust pressure valve to 1.5 to 1.8 mm (0.060 to 0.070 in.).



Recheck all valve adjustments.

Remove adjusting cover and reinstall guides and cover.

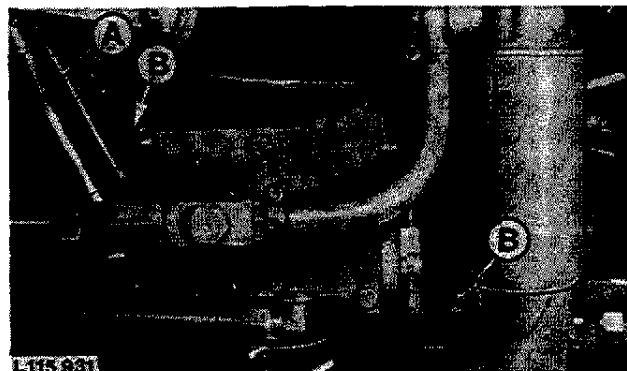
NOTE Valve springs are color-coded; pressure springs are red, return springs are green.

L104951-LB37030AE-010287

INSTALLING SELECTIVE CONTROL VALVE

Tractors With SG2 Cab

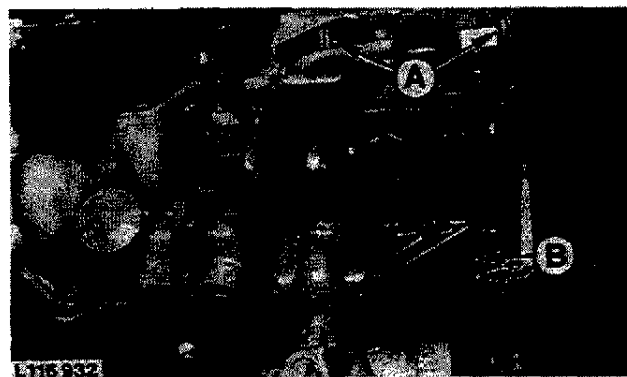
Install selective control valve on tractor and reconnect hydraulic lines. Adjust connecting rods (A) of selective control valve so that control lever travel for "complete lowering" and "complete raising" of remote cylinder is the same.



L115931-LB27030BE-010488

Tractors Without SG2 Cab

Reconnect hydraulic lines.
Secure connecting rods (A).
Tighten both cap screws (B) to 120 Nm (90 ft-lb).

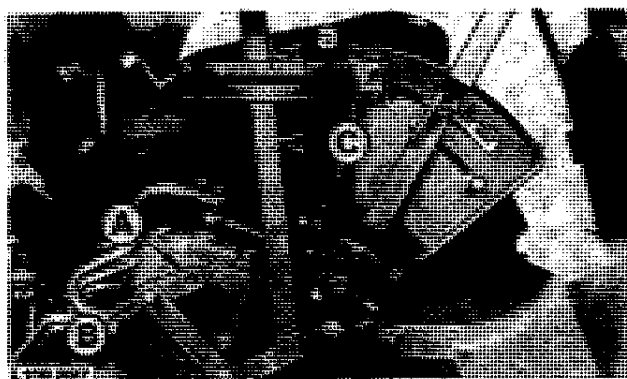


L115932-LB37030AE-010888

ADJUSTING CONTROL LEVER* (Without SG2 Cab)

Move lever shaft (A) to neutral position. Set control lever (C) at a distance "a" of 112 mm (4.41 in.) and tighten cap screw (B).

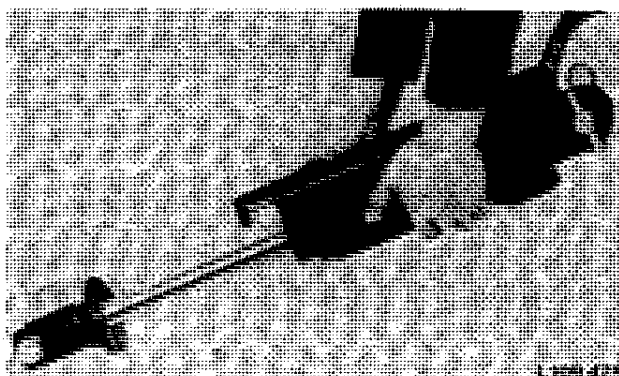
* From tractor serial no. 625 463L



L116897-LB27030AE-010488

CHECKING SELECTIVE CONTROL VALVE

Connect a double-acting hydraulic cylinder to breakaway couplers. After extending or retracting the hydraulic cylinder, the control lever should return automatically to neutral position.



L109475-LB37030AE-010888

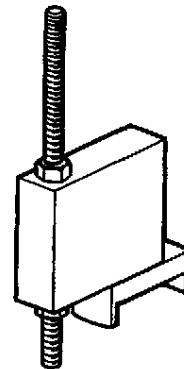
Group 35 **ISO BREAKAWAY COUPLERS**

SPECIAL TOOLS

JDG 266

A—Compressing breakaway coupler springs

(A)



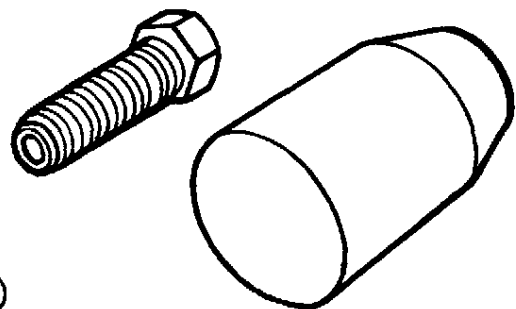
L 112 207

L112207-LB27035AE-010886

JDG 527

A—Installation and removal of coupler

(A)

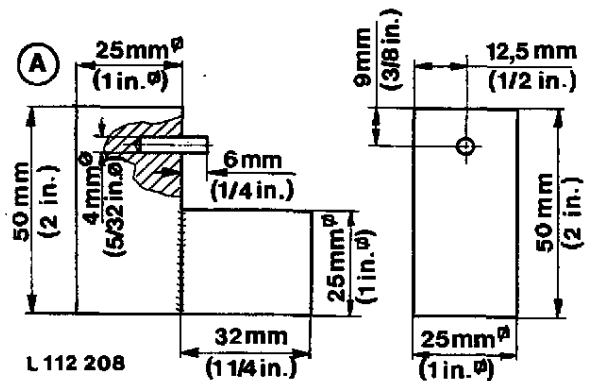


L 113707

L113707-LB27035AE-010886

SPECIAL TOOLS – SELF-MANUFACTURE

A—Holding the coupler



L 112 208

L112208-LB27035AE-010886

SPECIFICATIONS

Retaining Spring:

- Spring tension at a length
of 19 mm (0.75 in.) 140 to 170 N (32 to 39 lb)

Bleed Valve Spring:

- Spring tension at a length
of 5 mm (0.2 in.) 8 to 10 N (1.8 to 2.2 lb)

Poppet Valve Spring:

- Spring tension at a length
16.5 mm (0.64 in.) 75 to 90 N (16 to 20 lb)

ISOABR-LB27035AE-000886

TORQUES FOR HARDWARE

- Operating lever cover, cap screws 8 Nm (6 ft-lb)
- Breakaway coupler bracket to rockshaft housing,
cap screws 120 Nm (85 ft-lb)
- Breakaway coupler housing to bracket,
cap screws 50 Nm (35 ft-lb)
- Coupler socket to coupler 50 Nm (35 ft-lb)

ISOABR-LB47030AE-000687

REMOVING BREAKAWAY COUPLER

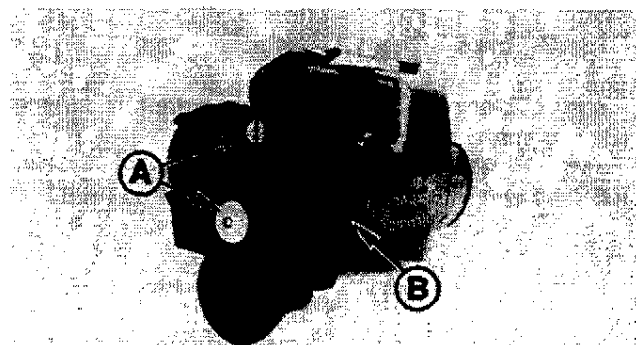
Disconnect hydraulic lines (A) and remove cap screws (B).



L116889-LB47030AE-010687

REMOVING DUST CAP

Remove hex. socket screws (A) holding dust cap (B).



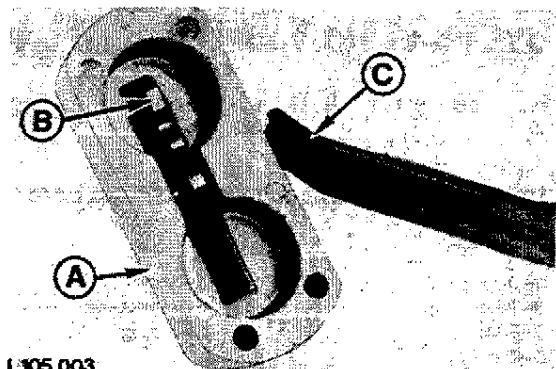
L116890

L116890-LB47030AE-010687

REMOVING COVER

Remove the four cap screws holding cover (A).

A-Cover
B-Cam
C-Lever



L105 003

L105003-LB47030AE-010687

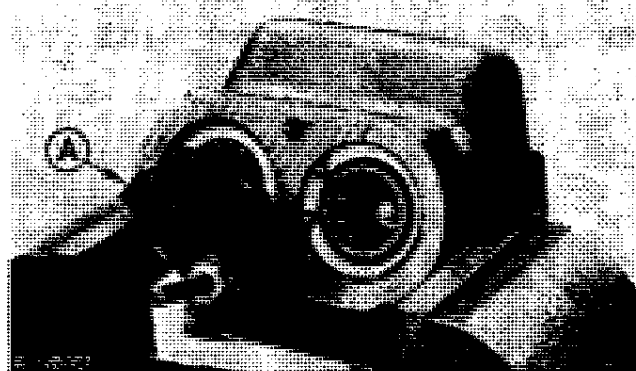
REMOVING SNAP RING

Install special tool JDG266 (A) on coupler. Tighten hex. nut to relieve pressure on snap ring.

Remove coupler snap ring.



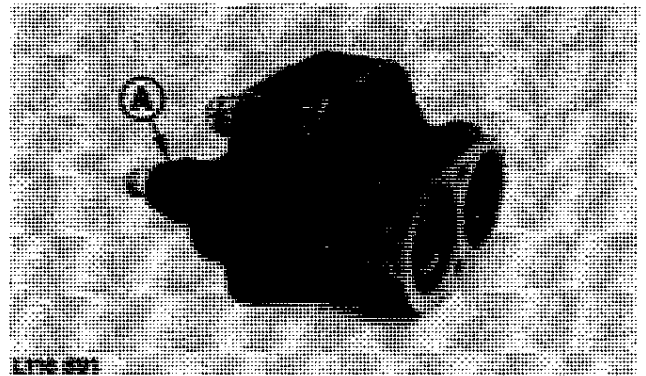
CAUTION: The coupler spring is under pressure. Balls of coupler become free.



L105004-LB47030AE-010687

REMOVING COUPLER

Position special tool JDG527 (A) in breakaway coupler with screw tightened fully.
Tap screw lightly with a hammer to drive coupler forward a little so that seal rings are not damaged.

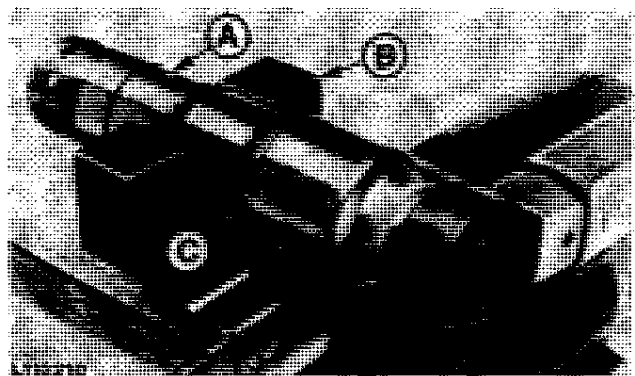


L116891-LB47030AE-010687

DISASSEMBLING COUPLER

Place coupler section (A) in self-manufactured holder (B) and screw out coupler socket (C).

IMPORTANT: Coupler section must not be firmly clamped in holder.



L112210-LB27035AE-010886

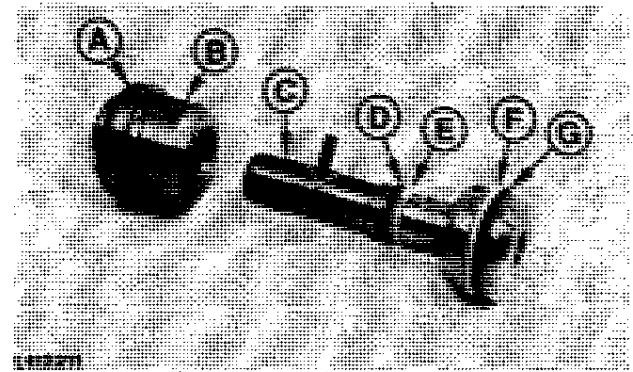
OVERHAULING COUPLER COMPONENTS

Replace O-rings (A, D and G) and backup rings (E and F).

Make sure that there is no restriction in bore (see arrow).

A-O-ring
B-Guide
C-Piston
D-O-ring

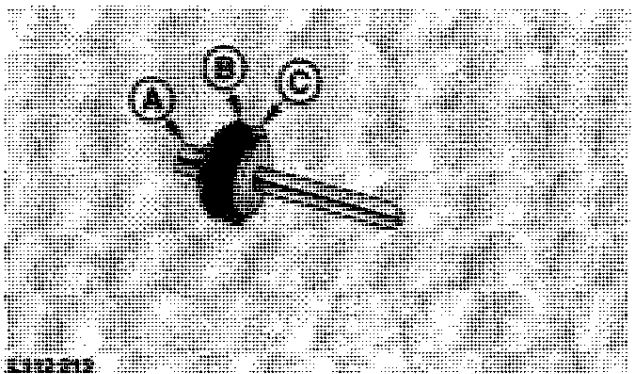
E-Backup ring
F-Backup ring
G-O-ring



L112211-LB27035AE-010886

Replace rubber washer (B) and metal ring (C).

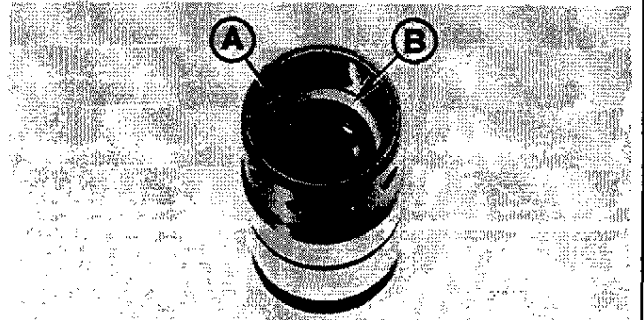
A-Cone
B-Rubber washer
C-Metal ring



L112212-LB47030AE-010687

OVERHAULING COUPLER COMPONENTS (Contd.)

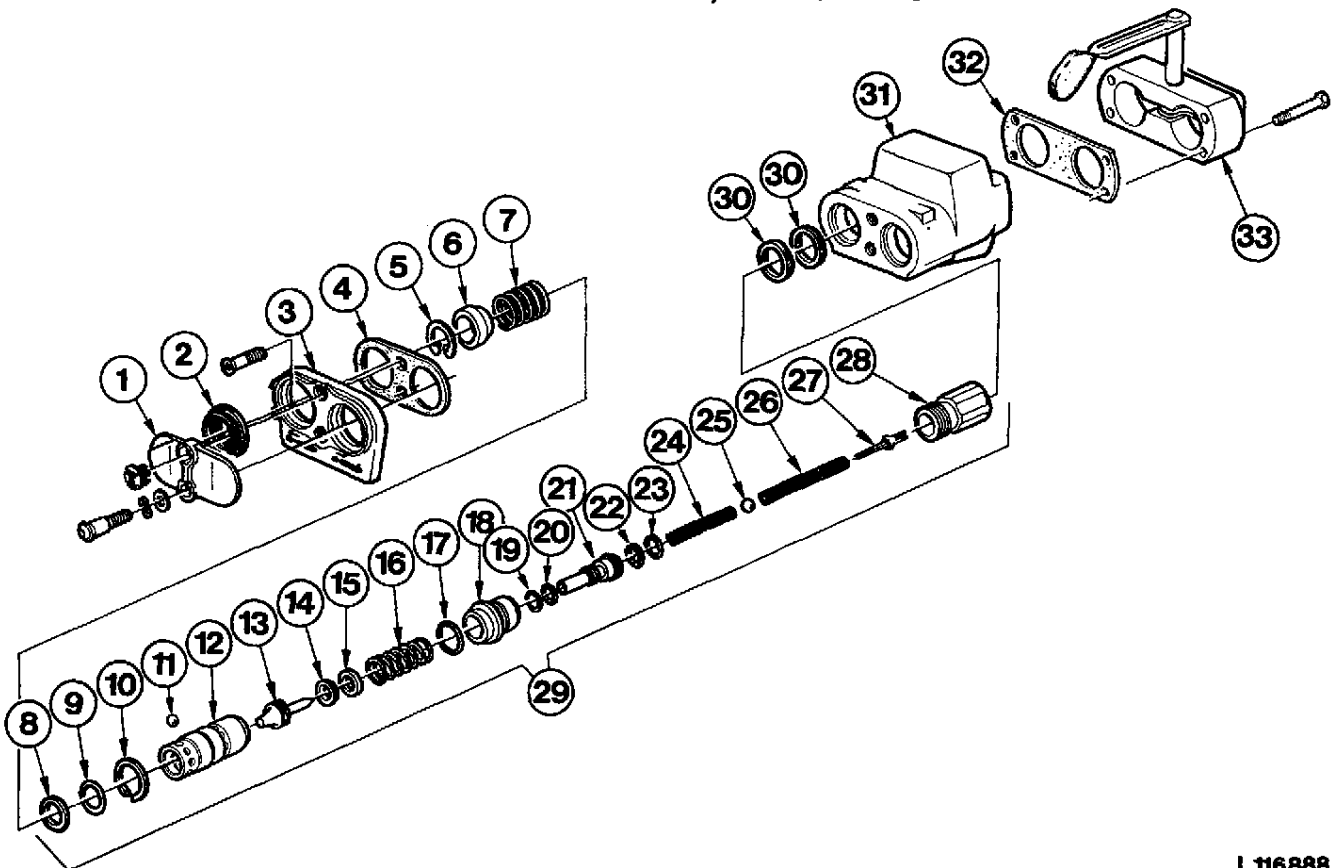
Replace O-ring (A) and backup ring (B).



L112213

L112213-LB27035AE-010886

BREAKAWAY COUPLER, EXPLODED VIEW



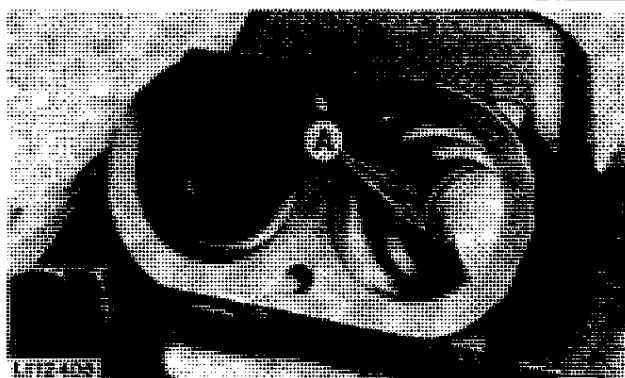
L 116888

- | | | | |
|---------------|--------------------|-----------------|---------------------|
| 1-Cover | 10-Snap ring | 18-Guide | 26-Long spring |
| 2-Cover | 11-Balls (10 used) | 19-O-ring | 27-Bleed valve |
| 3-Dust cap | 12-Coupler | 20-Backup ring | 28-Coupler socket |
| 4-Gasket | 13-Cone | 21-Piston | 29-Coupler assembly |
| 5-Snap ring | 14-Rubber washer | 22-Backup ring | 30-Seal ring |
| 6-Sleeve | 15-Metal ring | 23-O-ring | 31-Housing |
| 7-Spring | 16-Spring | 24-Short spring | 32-Gasket |
| 8-Backup ring | 17-O-ring | 25-Ball | 33-Cover |
| 9-O-ring | | | |

L116888-LB47030AE-010687

REPAIRING COUPLER HOUSING

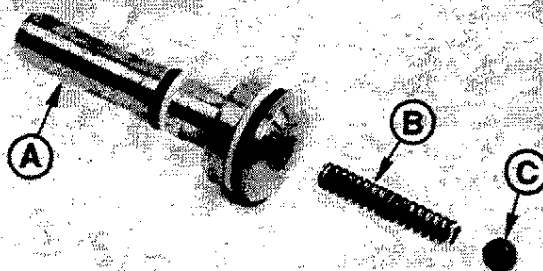
Replace seal rings (A) with sealing lips facing each other.



L112406-LB27035AE-010886

ASSEMBLING COUPLER

Install short spring (B) and ball (C) in piston (A).
Use a drift to press ball on its seat.



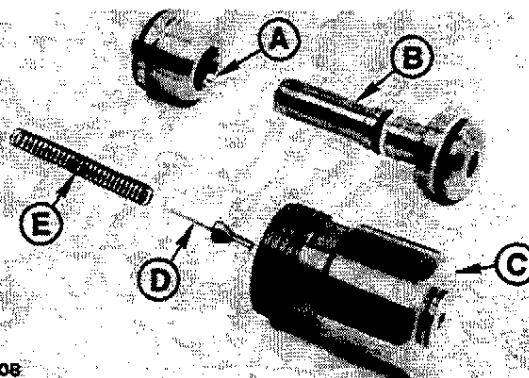
L112407

L112407-LB27035AE-010886

Install the long spring (E) together with bleed valve (D). Place guide (A) on piston. Install all parts in coupler socket (C).

A-Guide
B-Piston
C-Coupler socket

D-Bleed valve
E-Spring



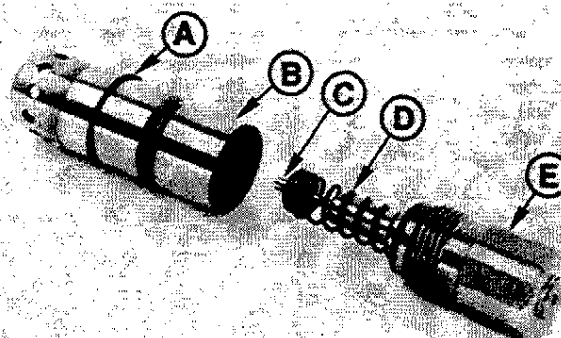
L112408

L112408-LB27035AE-010886

Install preassembled cone (C) with spring (D) and screw coupler (B) together with coupler socket (E).

A-Snap ring
B-Coupler
C-Cone

D-Spring
E-Coupler socket



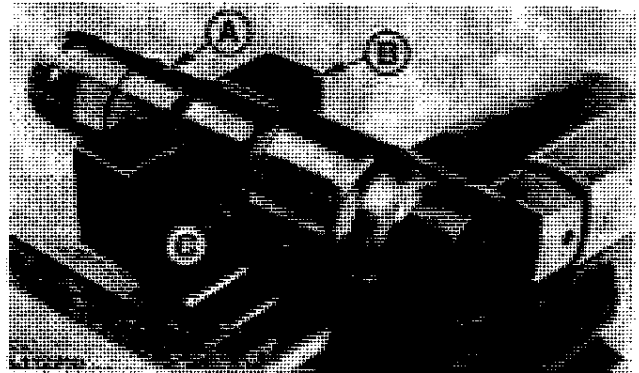
L112409

L112409-LB27035AE-000886

TIGHTENING COUPLER SOCKET

Position coupler (A) in the self-manufactured holding device (B) and tighten coupler socket to 50 Nm (35 ft-lb).

IMPORTANT: The coupler must not be secured tightly in the holding device.

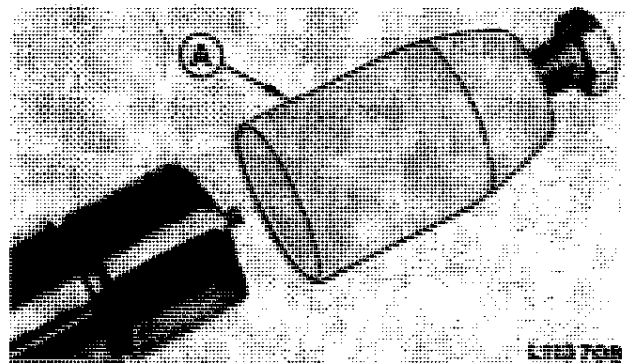


L112210-LB27035AE-010886

INSTALLING COUPLER

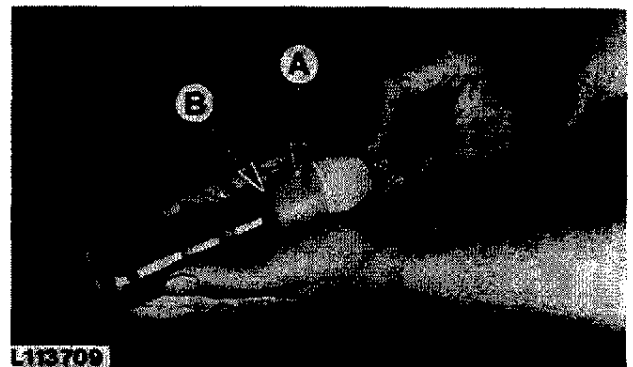
Install snap ring.

Slide JDG527 seal protector (A) over front hex. end of coupler socket.



L113708-LB27035AE-010886

Tighten cap screw of special tool JDG527 (A) until thin end of special tool just touches chamfer (B) of coupler. Coat the ten balls with grease before inserting into the coupler.



L113709-LB47030AE-010687

Slide ISO coupler socket into SCV housing and remove special tool.



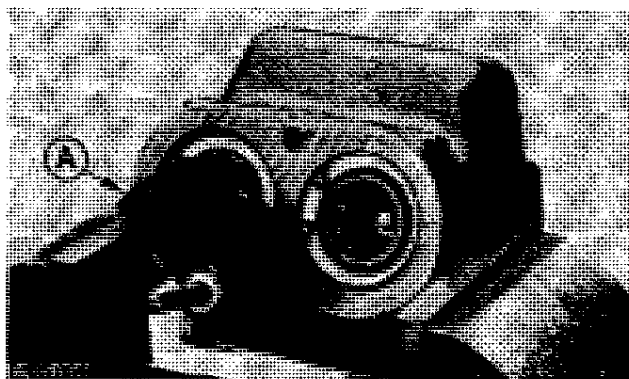
L116892-LB47030AE-010687

ISO Breakaway Couplers

Install spring and sleeve in SCV housing.
Using special tool JDG266 (A), press sleeve into housing.

Install snap ring and remove special tool.

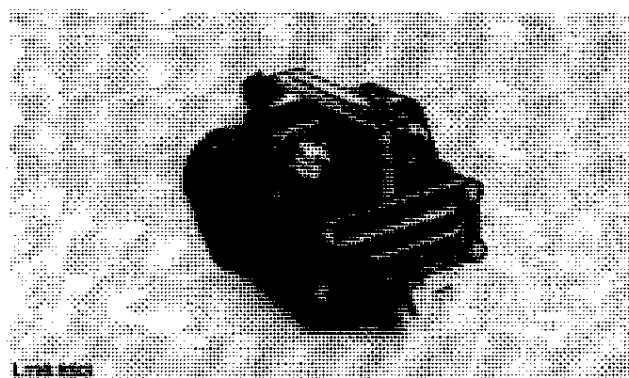
Install dust cap.



L105004-LB47030AE-010687

INSTALLING COVER

Tighten the four cover cap screws to 8 Nm (6 ft-lb).



L116893-LB47030AE-010687

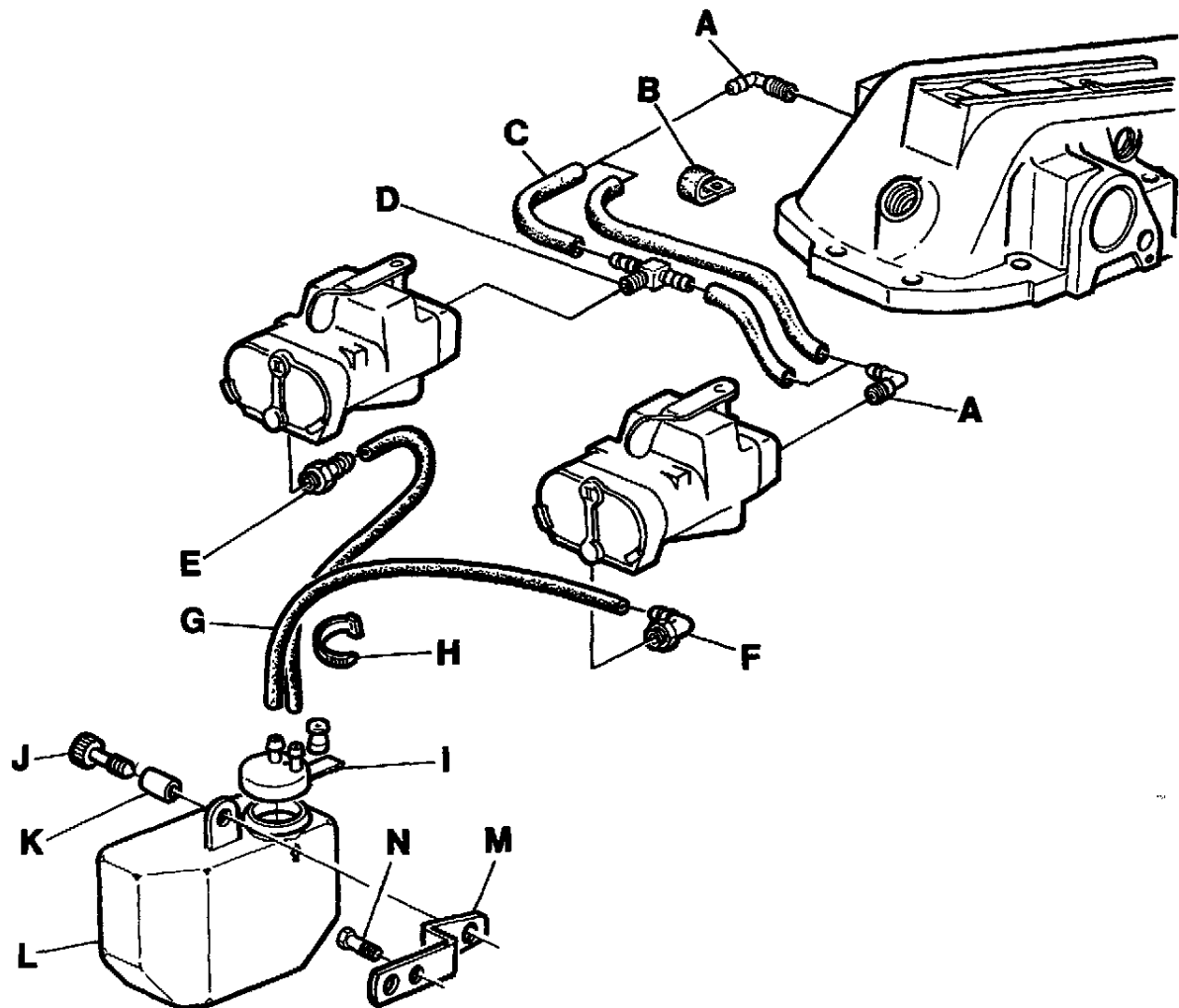
INSTALLING BREAKAWAY COUPLER

Attach breakaway coupler to bracket. Tighten cap screws (B) to 50 Nm (35 ft-lb). Reconnect hydraulic lines (A).



L116889-LB47030AE-010687

LAYOUT OF LEAK-OFF OIL LINES



L119671

A-Elbow fitting
B-Bracket
C-Rubber hose
D-T-piece
E-Hose adapter

F-Elbow fitting
G-Plastic hose
H-Strap
I-Cover

J-Special screw
K-Bushing
L-Reservoir
M-Bracket
N-Cap screw

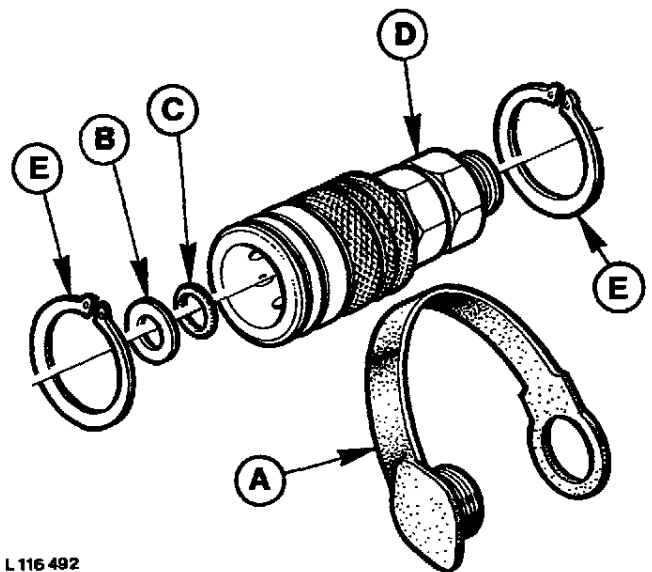
L119671-LB37035AE-010888

ISO QUICK COUPLER, EXPLODED VIEW

The back-up ring (B) and O-ring (C) can be replaced individually.
The coupler socket (D) must be replaced as an assembly.

A-Dust cap
B-Backup ring
C-O-ring

D-Coupler socket
E-Snap ring

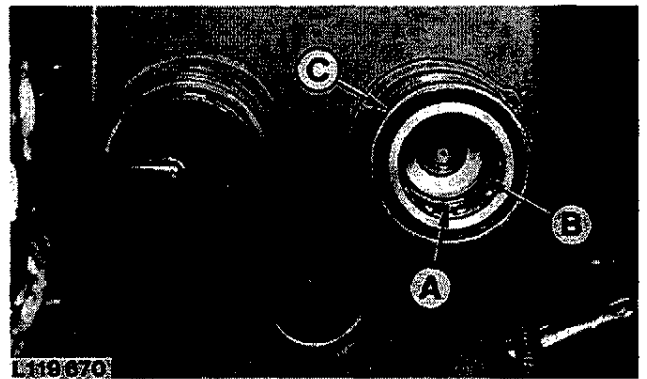


L 116 492

L116492-LB37040AE-010287

REPLACING BACK-UP RING AND O-RING

A-Backup ring
B-O-ring
C-Coupler socket



L118 070

L118670-LB27040AE-010488

SPECIFICATIONS

Dimensions of New Parts

Stop valve spring – Spring tension at a length of 22.5 mm (0.88 in.)	54 to 66 N (12 to 15 lb)
Stop rod spring – Spring tension at a length of 161 mm (6.34 in.)	50.5 to 65.5 N (11.5 to 14.5 lb)
Damping spring – Spring tension at a length of 14 mm (0.55 in.)	49 to 67 N (11 to 15 lb)

FERNZYL-LA77035AE-040185

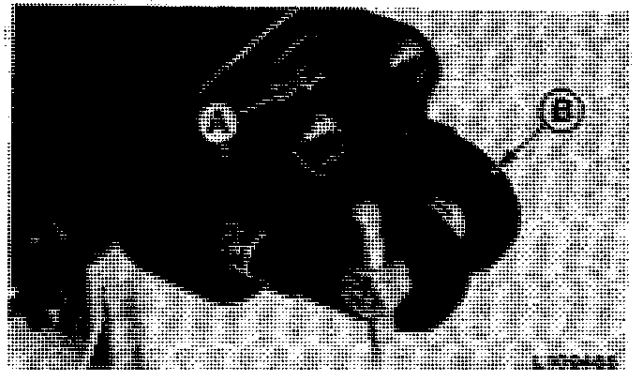
TORQUES FOR HARDWARE

Piston rod, special nut	500 Nm (370 ft-lb)
Piston rod guide, cap screws	50 Nm (35 ft-lb)
End cap, cap screws	160 Nm (120 ft-lb)

FERNZYL-LB27045AE-010488

REMOVING COVER

Remove the four cap screws (A) and take off cover (B).



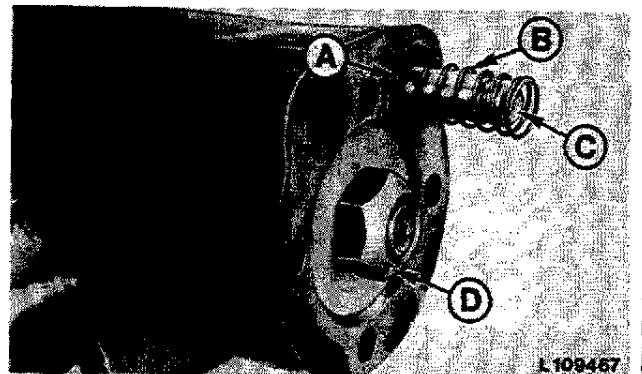
L109468-LA77035AE-040185

REMOVING PISTON

Remove spring (B) and valve (C). Replace seal ring (A). Remove hex. nuts (D) and lift out piston with piston rod.

A-Seal ring
B-Spring

C-Valve
D-Hex. nut



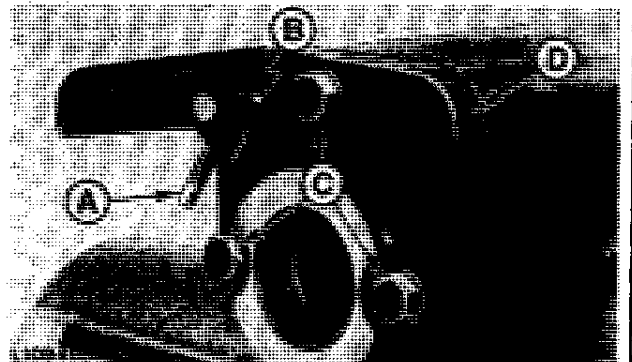
L109467-LA77035AE-040185

REMOVING PISTON ROD GUIDE

Press stop rod (B) into cylinder. Drive out grooved pin (A). Remove screws (C) and lift off piston rod guide (D). Remove stop rod.

A-Grooved pin
B-Stop rod

C-Cap screws
D-Piston rod guide

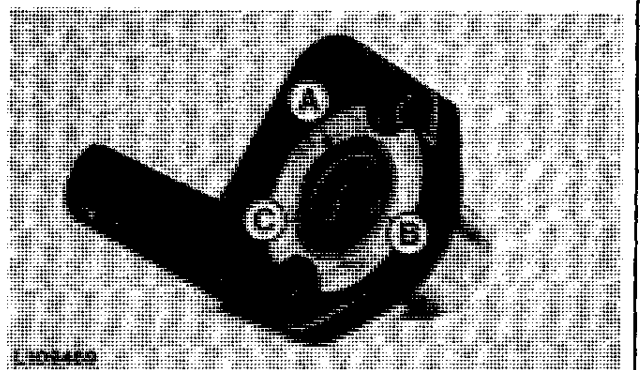


L109468-LA77035AE-040185

OVERHAULING PISTON ROD GUIDE

Install seal ring (A) with sealing lip facing outwards.

A-Seal ring
B-O-ring
C-Back-up ring



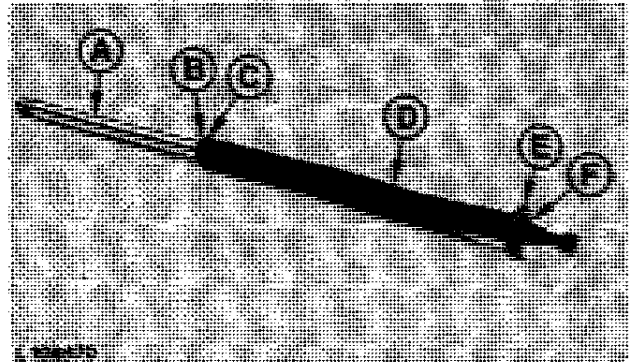
L109469-LA77035AE-040185

ASSEMBLING STOP ROD

Install assembled stop rod into cylinder.

A-Stop rod
B-Snap ring
C-Washer

D-Spring
E-Washer
F-Snap ring



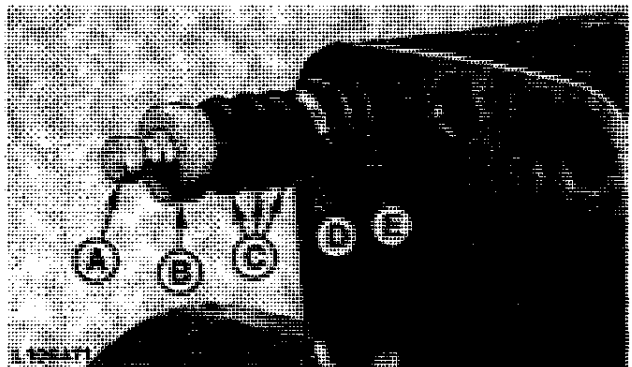
L109470-LA77035AE-040185

INSTALLING SEAL

Slide spring (E), back-up ring (D), V-packings (C) and back-up ring (B) onto stop rod (A).

A-Stop rod
B-Back-up ring
C-V-packings

D-Back-up ring
E-Spring

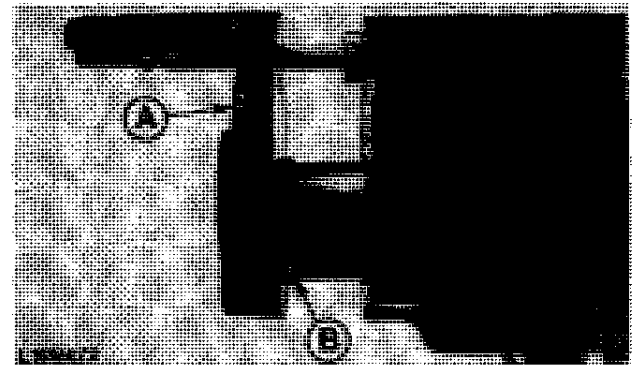


L109471-LA77035AE-040185

INSTALLING PISTON ROD GUIDE

Install piston rod guide (A) with new seal ring (B).

Tighten cap screws to 50 Nm (35 ft-lb).



L109472-LA77035AE-000185

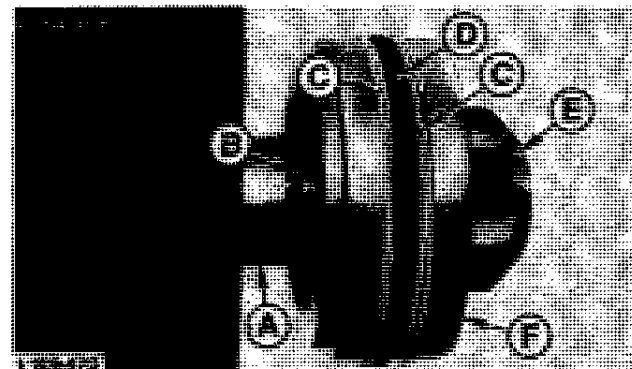
INSTALLING PISTON

Install piston rod (A) with O-ring (B).

Install piston (F) and tighten hex. nut (E) to 500 Nm (370 ft-lb).

A-Piston rod
B-O-ring
C-Back-up rings

D-O-ring
E-Hex. nut
F-Piston



L109473-LB27045AE-010488

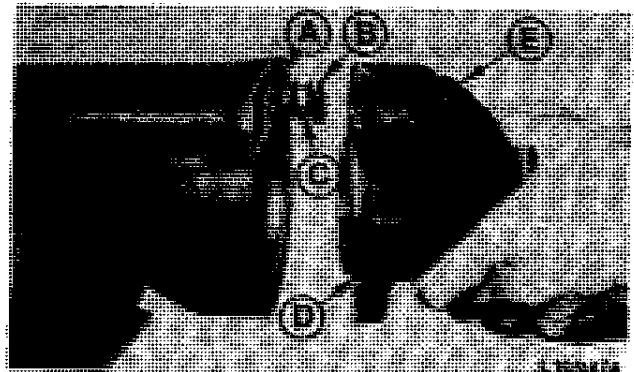
INSTALLING COVER

Insert seal ring (A), valve (C) and spring (B).

Install cover (E) with gasket (D) and tighten securing screws to 160 Nm (120 ft-lb).

A-Seal ring
B-Spring
C-Valve

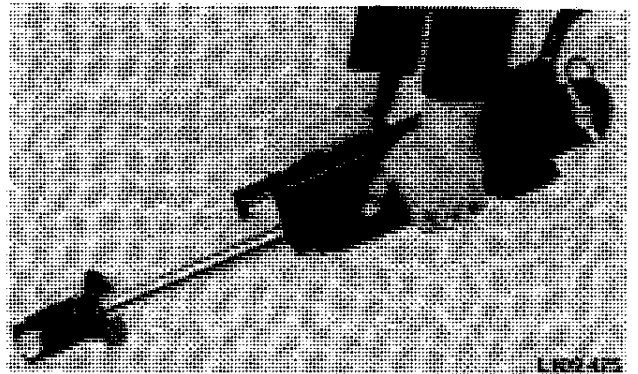
D-Gasket
E-Cover



L109474-LA77035AE-000185

BLEEDING REMOTE CYLINDER

Connect remote cylinder to quick couplers of tractor. Fully extend and retract cylinder eight times while tilting remote cylinder.



L109475-LA77035AE-040185

Section 80

MISCELLANEOUS

NOTE: Group 05 deals only with the front axle of tractors not equipped with front wheel drive. The front axle on tractors equipped with front wheel drive is dealt with in Technical Manual – Front Wheel Drive Axles APL-300 and APL-700 Series.

05 – FRONT AXLE

		2250	2450	2650	2650 N	2850
Special tools	05-1	x	x	x		x
Specifications	05-1	x	x	x		x
Torques for hardware	05-1	x	x	x		x
Removing front axle	05-2	x	x	x		x
Front axle, exploded view						
– With manual or power steering	05-3	x	x	x		x
– With hydrostatic steering	05-4	x	x	x		x
Pressing bearing pin and bushing into front axle carrier	05-5	x	x	x		x
Pressing bushing into front axle center	05-5	x	x	x		x
Installing bell crank (with manual or power steering)	05-6	x	x	x		x
Pressing bushings into axle knee	05-6	x	x	x		x
Installing axle knee	05-7	x	x	x		x
Installing knuckle and spindle assemblies	05-7	x	x	x		x
Attaching steering arms	05-7	x	x	x		x
Adjusting knuckle and spindle assembly axial play	05-8	x	x	x		x
Installing tie rod	05-9	x	x	x		x
Checking toe-in	05-9	x	x	x		x
Adjusting toe-in	05-10	x	x	x		x

10 – FRONT AND REAR WHEELS

Special tools	10-1	x	x	x	x	x
Torques for hardware	10-1	x	x	x	x	x
Removing front wheel	10-2	x	x	x	x	x
Removing wheel hub assembly	10-2	x	x	x		x

VERSCH-LB38001AE-010888

10 – FRONT AND REAR WHEELS (Contd.)

		2250	2450	2650	2650 N	2850
Front wheel, exploded view						
– Standard type	10-3	x	x	x		x
– With low axle	10-4	x				
Installing oil seal (standard type)	10-5	x	x	x		x
Installing wheel hub assembly	10-5	x	x	x		x
Adjusting front wheel bearings	10-6	x	x	x		x
Installing front wheels	10-6	x	x	x	x	x
Removing snap ring (with rack-and-pinion axle)	10-6	x	x	x		x
Removing a rear wheel (with rack-and-pinion axle)	10-7	x	x	x		x
Rear wheel, exploded view (with rack-and-pinion axle)	10-7	x	x	x		x
Tightening rims (with cast rear wheels; with rack-and-pinion and flanged axle)	10-8	x	x	x		x
Installing pinion sleeve half (with rack-and-pinion axle)	10-8	x	x	x		x
Installing a rear wheel (with rack-and-pinion axle)	10-8	x	x	x		x
Installing a rear wheel (tractors with flanged axle)	10-8	x	x	x	x	x

15 – "AXLA" PICK-UP TRAILER HITCH

Installing pick-up trailer hitch	15-1	x	x	x		x
"Axla" pick-up trailer hitch, exploded view						
– Earlier type, without increased lifting capacity	15-2	x	x	x		x
– Earlier type, with increased lifting capacity	15-3			x		x
– Later type	15-4	x	x	x		x
Adjusting pick-up trailer hitch	15-5	x	x	x		x

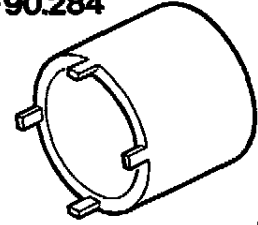
20 – HEIGHT-ADJUSTABLE TRAILER HITCH

Height-adjustable trailer hitch, exploded view						
– Without remote control	20-1	x	x	x		x
– With remote control	20-2	x	x	x		x
Attaching guide rails	20-3	x	x	x		x
Installing low-position trailer hitch	20-3	x	x	x		x
Remote control, exploded view	20-3	x	x	x		x
Adjusting remote control	20-4	x	x	x		x

SPECIAL TOOLS

A—Tightening bell crank slotted
nut (on tractors with manual
or power steering)

19.58-90.284



L 115 439

L115439-LB38005AE-000287

SPECIFICATIONS

Maximum permissible axial play of knuckle
and spindle assembly in axle knee 0.76 mm (0.03 in.)

Front wheel toe-in:

– Without front wheel drive 3 to 6 mm (1/8 to 1/4 in.)
– With front wheel drive 0 to 3 mm (0 to 1/8 in.)

FAXLE-LB48005AE-010687

TORQUES FOR HARDWARE

WITH HYDROSTATIC STEERING

Bearing pin to front axle carrier, cap screw 100 Nm (75 ft-lb)
Axle knees to front axle center, cap screws 400 Nm (300 ft-lb)
Steering arm to knuckle and spindle assembly,
cap screw 230 Nm (170 ft-lb)
Tie rod clamp, cap screws 55 Nm (40 ft-lb)

FAXLE-LB38005AE-010688

TORQUES FOR HARDWARE (Contd.)

WITH MANUAL OR POWER STEERING

Bearing pin to front axle carrier, cap screw	100 Nm (75 ft-lb)
Axle knees to front axle center, cap screws	400 Nm (300 ft-lb)
Steering arm to knuckle and spindle assembly:	
– Clamping screw (with low front axle)	120 Nm (85 ft-lb)
– Cap screw (all other front axles)	230 Nm (170 ft-lb)
Tie rod clamp, M10 cap screw	55 Nm (40 ft-lb)
Tie rod clamp, M12 cap screw	90 Nm (65 ft-lb)
Tie rod to steering arm and bell crank:	
– Tie rod with M14 slotted nuts	70 Nm (50 ft-lb)
– Tie rod with M18 slotted nuts	90 Nm (65 ft-lb)
Drag link to bell crank, slotted nuts	90 Nm (65 ft-lb)
Bell crank to front axle center, slotted nut	60 Nm (45 ft-lb)

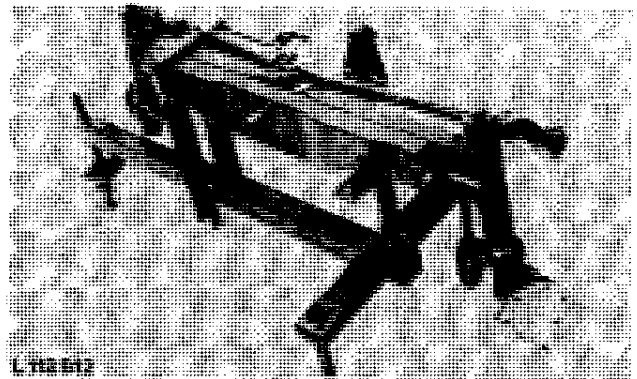
NOTE: If cotter pin cannot be inserted in slotted nut when tightened to specified torque, tighten nut to next slot and secure with cotter pin.

FAXLE-LB380058E-010888

REMOVING FRONT AXLE

For removing front axle, see Section 10, Group 25.

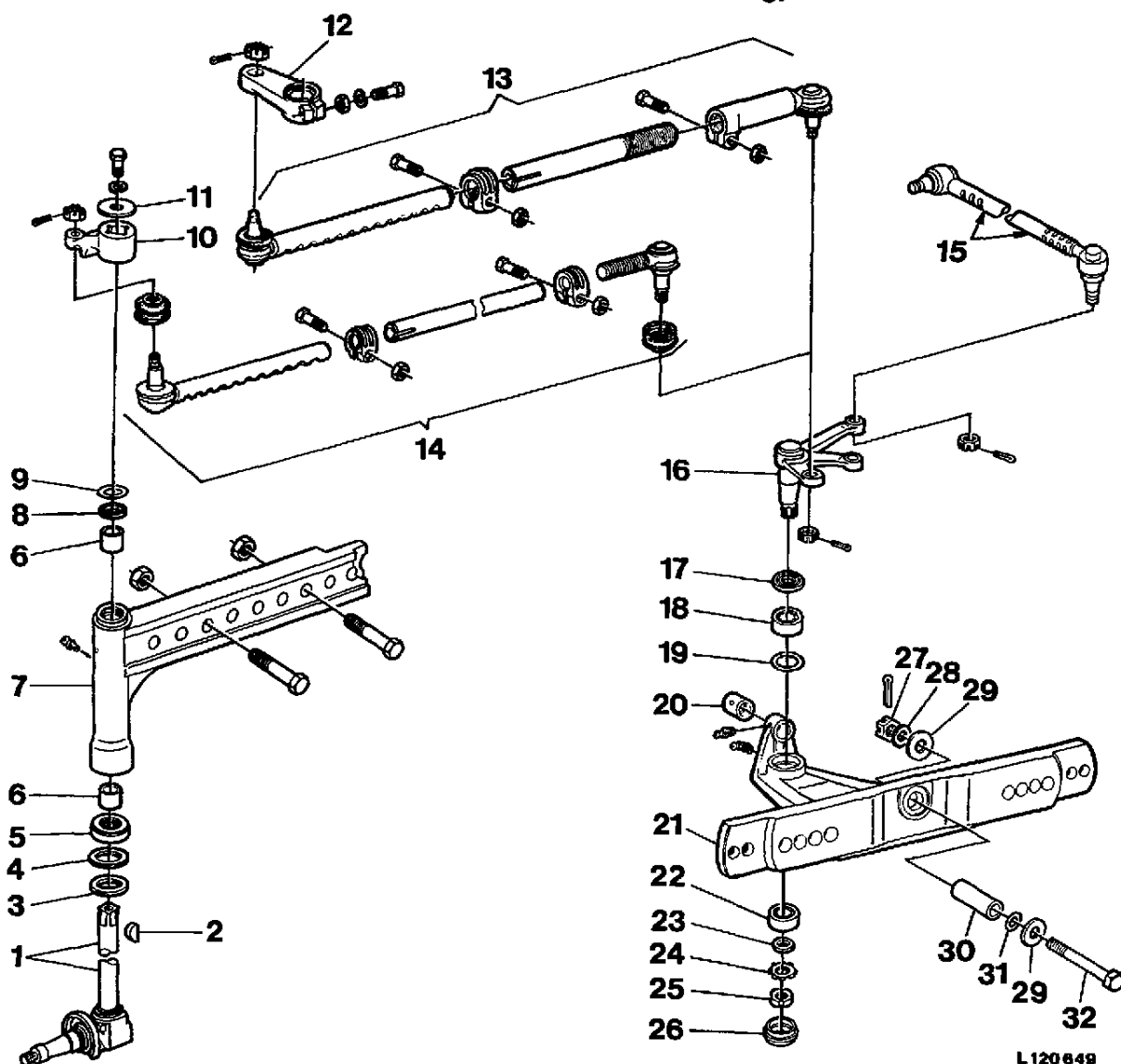
Disassemble front axle.



L 112 512

L112812-LB28005AE-010886

FRONT AXLE, EXPLODED VIEW (With Manual or Power Steering)



L120649

1-Knuckle and spindle assy.

2-Key*

3-Oil seal

4-Washer

5-Thrust bearing

6-Bushing

7-Axle knee, right-hand

8-Oil seal

9-Shim (use as required)**

10-Steering arm, right-hand

11-Washer

12-Steering arm, right-hand*

13-Tie rod assembly*

14-Tie rod assembly

15-Drag link

16-Bell crank

17-Cover disk

18-Taper roller bearing

19-Shim (use as required)

20-Bushing

21-Front axle center

22-Taper roller bearing

23-Back-up washer

24-Locking tab

25-Grooved nut

26-Dust cap

27-Slotted nut

28-Washer

29-Washer

30-Pivot tube

31-Shim (use as required)

32-Special cap screw

* With low type axle

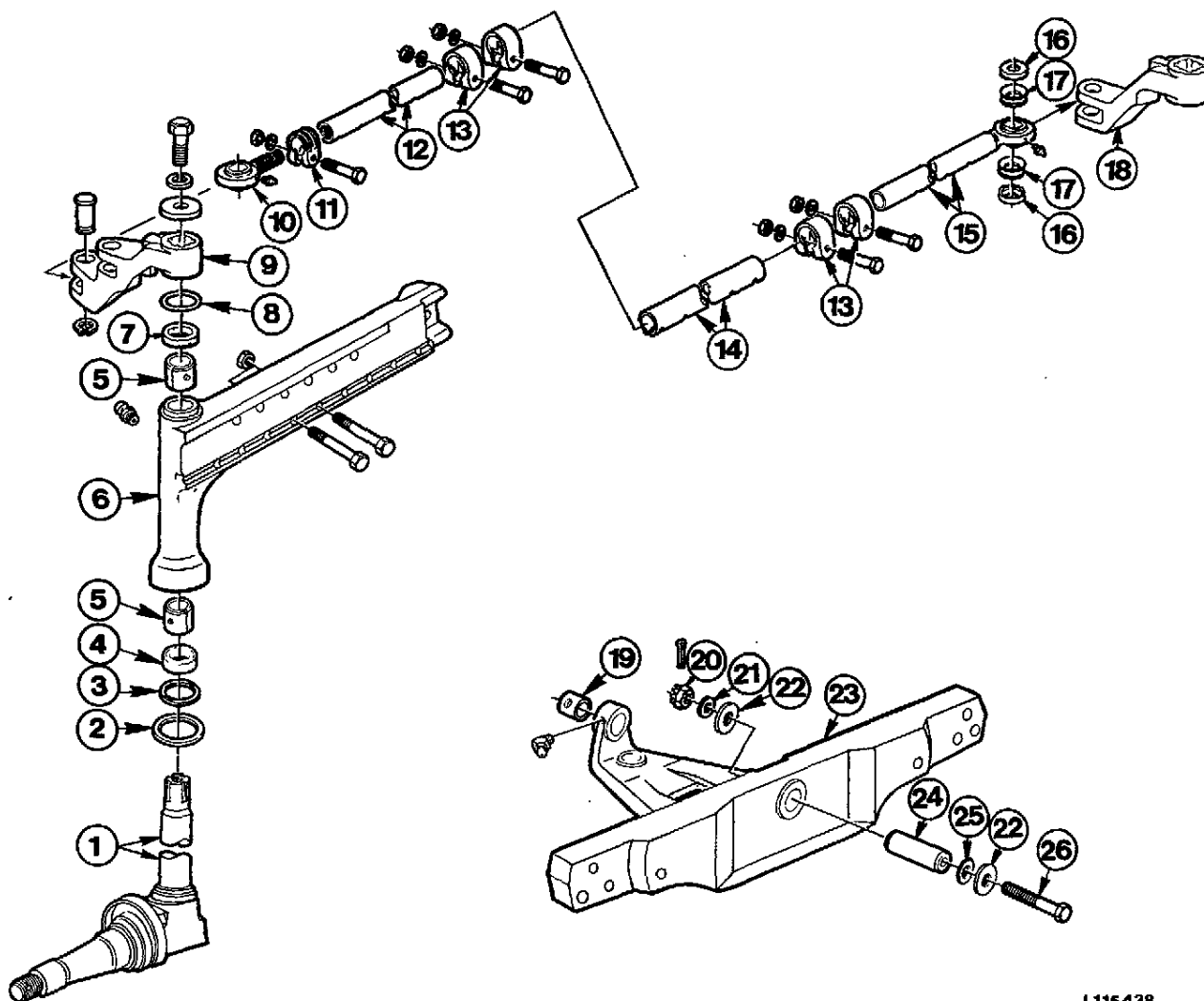
** Not on low type axle

NOTE: The standard front axle illustrated here (with one row of holes) is also available as a heavy-duty version (with two rows of holes).

L120649-LB38005AE-010888

Front Axle

FRONT AXLE, EXPLODED VIEW (With Hydrostatic Steering)



L115438

- 1-Knuckle and spindle assy.
- 2-Washer
- 3-Seal ring
- 4-Thrust bearing
- 5-Bushing
- 6-Axle knee, right-hand
- 7-Oil seal

- 8-Shim (use as required)
- 9-Steering arm, right-hand
- 10-Tie rod end
- 11-Clamp
- 12-Front tread adjusting rod
- 13-Clamp
- 14-Tube

- 15-Tie rod end
- 16-Washer
- 17-Seal ring
- 18-Steering arm, left-hand
- 19-Bushing
- 20-Slotted nut
- 21-Washer

- 22-Washer
- 23-Front axle center
- 24-Pivot tube
- 25-Shim (use as required)
- 26-Special cap screw

NOTE: The heavy-duty front axle illustrated here (with two rows of holes) is also available as standard (with one row of holes).

L115438-LB38005AE-010287

Front Axle

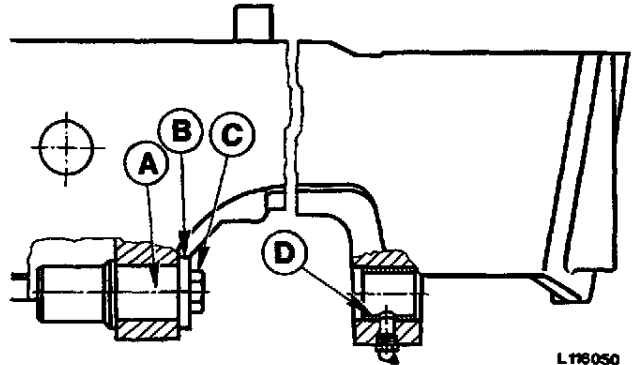
PRESSING BEARING PIN AND BUSHING INTO FRONT AXLE CARRIER

Coat bore for bearing pin (A) in front axle carrier with Loctite No. 648 (L41860) and press in bearing pin. Position washer (B) and cap screw (C). Tighten cap screw to 100Nm (75 ft-lb).

NOTE: The groove in bushing (D) must face upwards when installed.

A—Bearing pin
B—Washer

C—Cap screw
D—Bushing

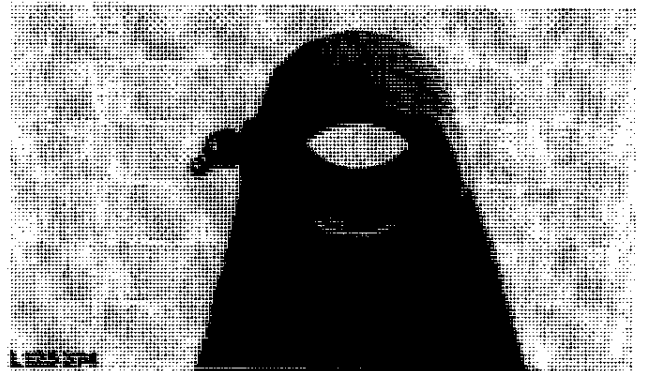


L116050-LB38005AE-010287

PRESSING BUSHING INTO FRONT AXLE CENTER

NOTE: The groove in inner surface of bushing must face downwards when installed.

Coat lower half of bore in axle center (below lubrication bore) with Loctite No. 648 (L41860).



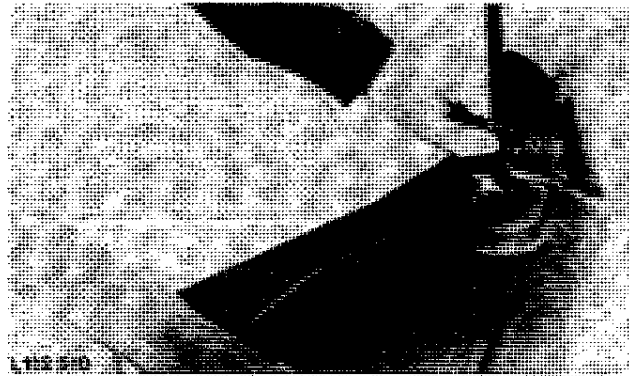
L125374-LB38005AE-010888

INSTALLING BELL CRANK (With Manual or Power Steering)

Determining Thickness of Shims

Measure depth of bore up to collar. Subtract 18.4 mm (0.724 in.) from the measured value.

Round off the second figure after the decimal point to "0". The measurement thus obtained gives you the shim pack thickness to be installed behind the taper roller bearings.

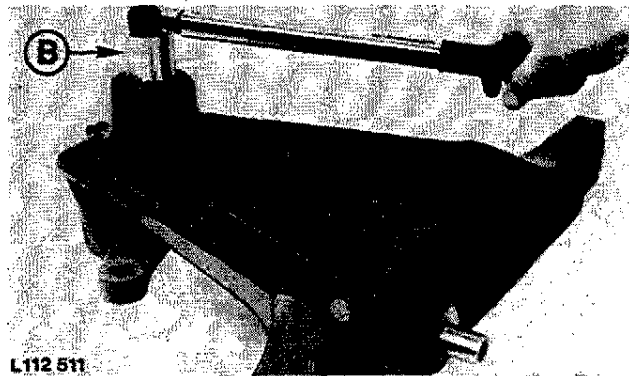


Tightening Slotted Nut

Tighten slotted nut to 60 Nm (45 ft-lb) using special tool 19.58-90.284 (B).

Insert cotter pin into slotted nut and press dust cap into axle center.

NOTE: Lubricate grease fittings of bell crank with JOHN DEERE EP multipurpose grease.



L112510, L112511-LB38005AE-010287

PRESSING BUSHINGS INTO AXLE KNEE

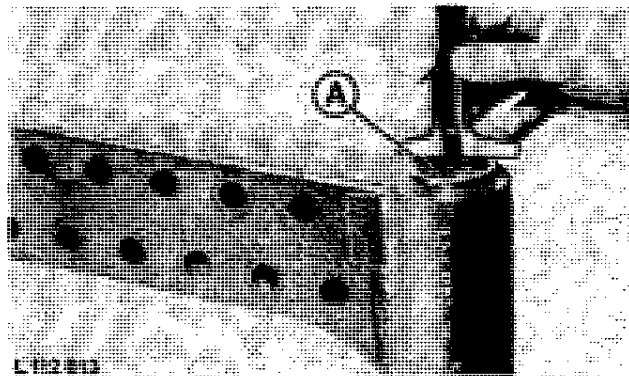
With Heavy-Duty Front Axle and Hydrostatic Steering

Distance between upper bushing (A) and upper edge of axle knee must be 11 mm (0.43 in.).

Lower bushing must be flush with lower side of axle knee.

On All Other Front Axle Types

Press in upper and lower bushing flush with lower side of axle knee.

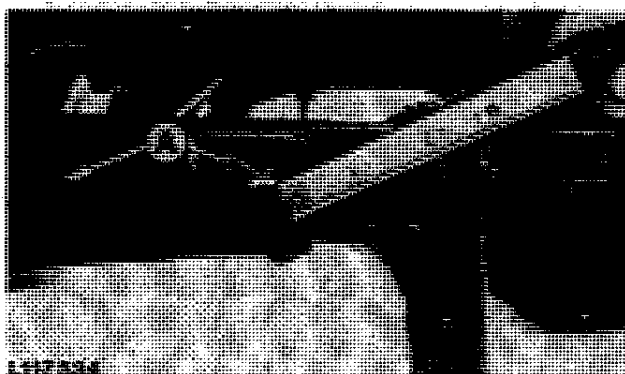


L112813-LB38005AE-010287

Front Axle

INSTALLING AXLE KNEE

Tighten cap screws (A) to 400 Nm (300 ft-lb).



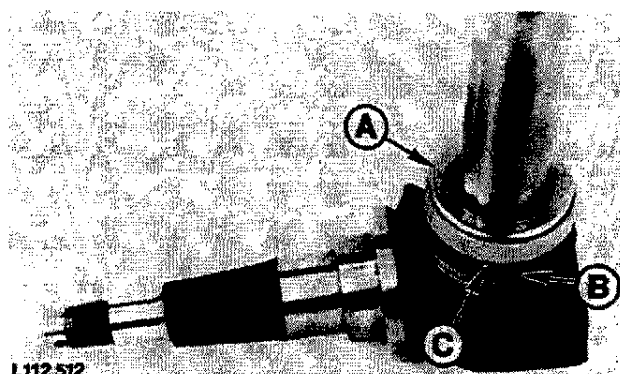
L117534-LB48005AE-010687

INSTALLING KNUCKLE AND SPINDLE ASSEMBLIES

With Low-Type Front Axle

Position seal ring (B), washer (C) and thrust bearing (A) on knuckle and spindle assembly. Install knuckle and spindle assembly. Position oil seal and steering arm.

NOTE: The inscription on thrust bearing must face away from knuckle and spindle assembly.



L112512

L112512-LB38005AE-010688

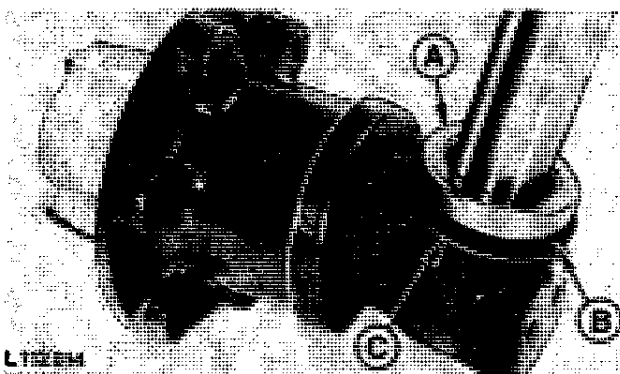
With All Other Axes

Position washer (C), seal ring (B) and thrust bearing (A) on knuckle and spindle assembly.

NOTE: The inscription on thrust bearing must face away from knuckle and spindle assembly.

NOTE: Washer (C) is fitted only on heavy-duty front axles and tractors with hydrostatic steering.

Install knuckle and spindle assembly. Position oil seal and shims.



L112514

L112514-LB38005AE-010688

ADJUSTING KNUCKLE AND SPINDLE ASSEMBLY AXIAL PLAY

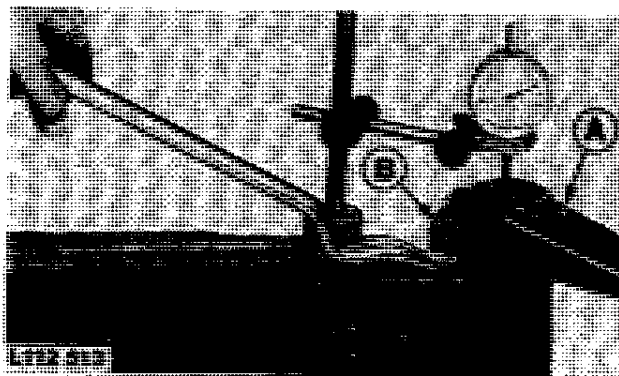
With Low-Type Front Axle

Adjust the knuckle and spindle assembly axial play by adjusting position of steering arm (A).

Spindles should turn easily. However do not exceed the maximum axial play of 0.76 mm (0.03 in.).

Tighten clamping screw (B) to 120 Nm (85 ft-lb).

Lubricate steering arm.



With All Other Axles

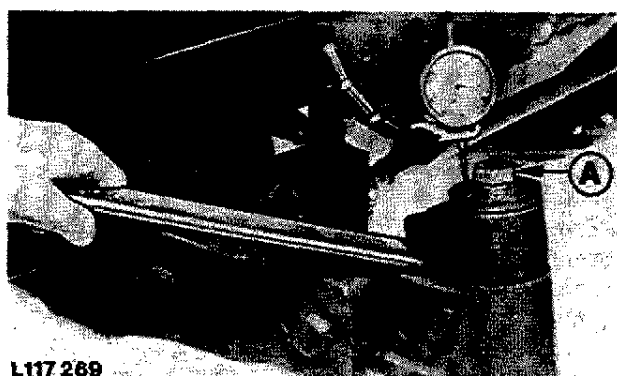
Adjust the knuckle and spindle assembly axial play by means of shims.

Spindles should turn easily. However do not exceed the maximum axial play of 0.76 mm (0.03 in.).

Tighten cap screw (A) to 230 Nm (170 ft-lb).

Tap steering arm with a lead hammer and retighten cap screw again to the same torque.

Lubricate axle knee.



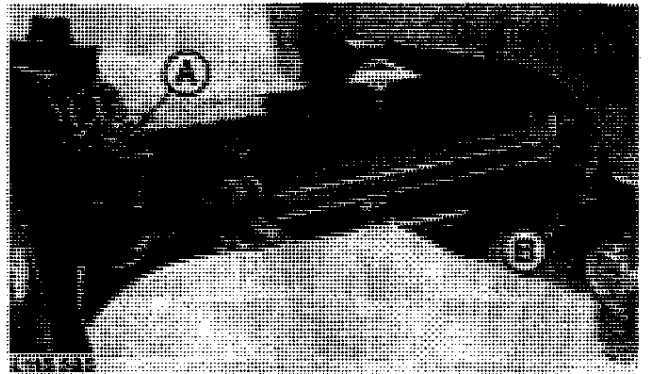
L112513, L117269-LB38005AE-010888

INSTALLING TIE ROD

Tractors with Manual or Power Steering

Tighten slotted nuts (A and B).

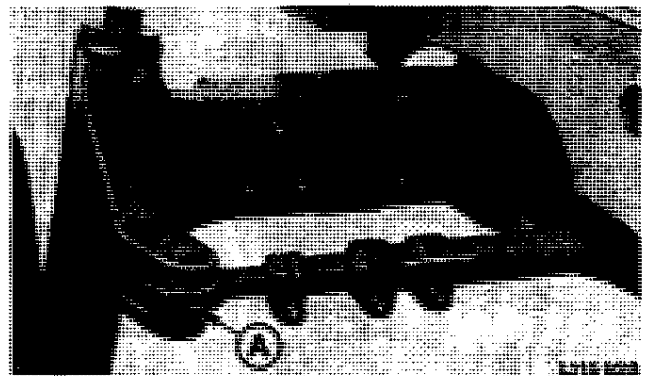
- Tie rod with M14 slotted nuts: 70 Nm (50 ft-lb)
- Tie rod with M18 slotted nuts: 90 Nm (65 ft-lb)



L115535-LB38005AE-010888

Tractors with Hydrostatic Steering

The track rod end (A) for fine adjustment must face to left-hand side of axle.



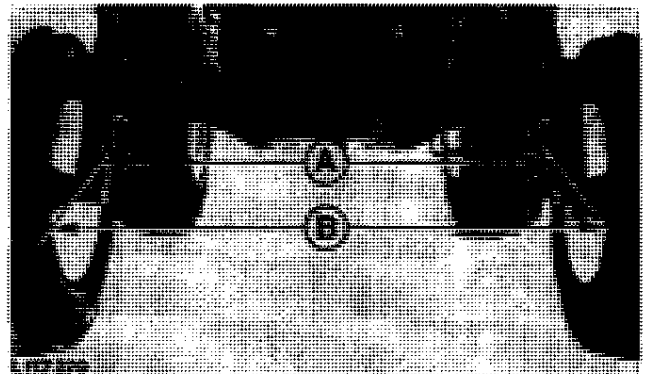
L115928-LB38005AE-010287

CHECKING TOE-IN

Measure tread width at front and rear at axle height at center line of rim.

Measurement (B) must be 3 to 6 mm (1/8 to 1/4 in.) less than measurement (A).

NOTE: On tractors with front wheel drive, toe-in must be 0 to 3 mm (0 to 1/8 in.).



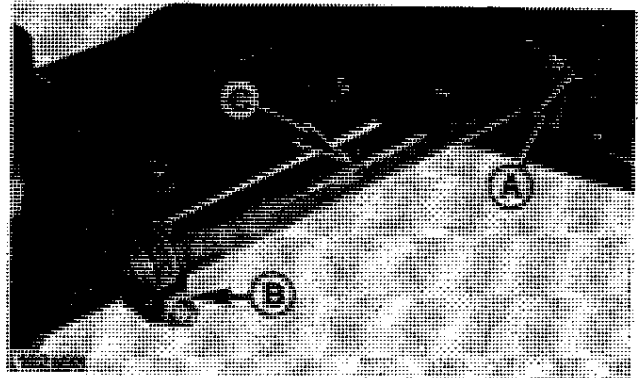
L117270-LB48005AE-010687

ADJUSTING TOE-IN

Tractors with Manual or Power Steering

On both tie rods, remove cap screw (B) and loosen cap screw (A) sufficiently. Turn tube (C) on both tie rods so that toe-in is adjusted equally via both tie rods.

Tighten cap screw (B) to 90 Nm (65 ft-lb) and cap screw (A) to 55 Nm (40 ft-lb).

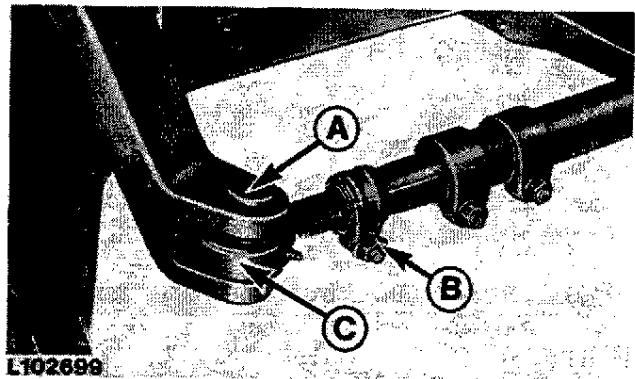


L102698-LB38005AE-000297

Tractors with Hydrostatic Steering

Remove pin (A) and disconnect tie rod. Loosen cap screw (B) and turn tie rod end (C) in or out to adjust toe-in.

Tighten cap screw (B) to 55 Nm (40 ft-lb).



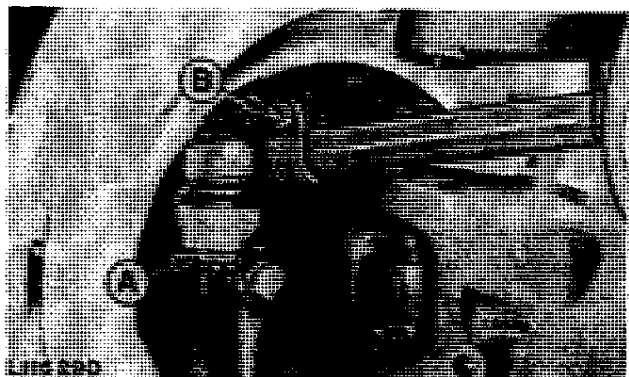
L102699

L102699-LB38005AE-000287

Tractors with Front Wheel Drive

Remove slotted nut (A) and disconnect tie rod. Loosen cap screw (B) and turn tie rod end in or out to adjust toe-in.

Tighten slotted nut (A) to 90 Nm (65 ft-lb) and cap screw (B) to 55 Nm (40 ft-lb).



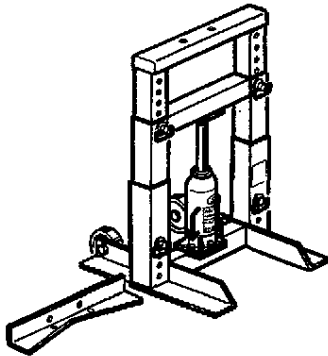
L116290

L116290-LB38005AE-010688

Group 10 FRONT AND REAR WHEELS

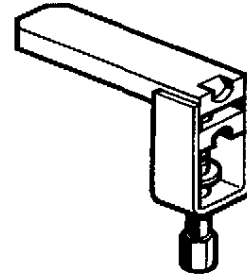
SPECIAL TOOLS

JT05725



(A)

JDG-18



(B)

L112 704

A—Supporting tractor

**B—Removing and installing snap
ring of rack-and-pinion axle**

L112704-LB28010AE-010886

TORQUES FOR HARDWARE

FRONT WHEELS

Wheel hub to axle spindle, slotted nut	50 Nm (35 ft-lb)
Steel disk to front wheel rim:	
– M16 x 120 attaching screws	250 Nm (185 ft-lb)
– M16 x 74 attaching screws	280 Nm (210 ft-lb)
Front wheel rim to wheel hub:	
– Without front wheel drive	150 Nm (110 ft-lb)
– With front wheel drive	300 Nm (220 ft-lb)

NOTE: After tightening slotted nut to prescribed torque, always turn nut back to next slot and secure with cotter pin.

WHEELS-LB38010AE-010888

TORQUES FOR HARDWARE (CONTD.)

REAR WHEELS

On tractors with flanged rear axle:

– Steel disk to rear wheel rim, 9/16 in. attaching screws	200 Nm (145 ft-lb)
– Steel disk to rear wheel rim, M16 x 120 attaching screws	250 Nm (185 ft-lb)
– Steel disk to rear wheel rim, M16 x 74 attaching screws	280 Nm (210 ft-lb)
– Cast disk to rear wheel rim	230 Nm (170 ft-lb)
– Rear wheels to rear axle	400 Nm (300 ft-lb)

On tractors with rack-and-pinion axle:

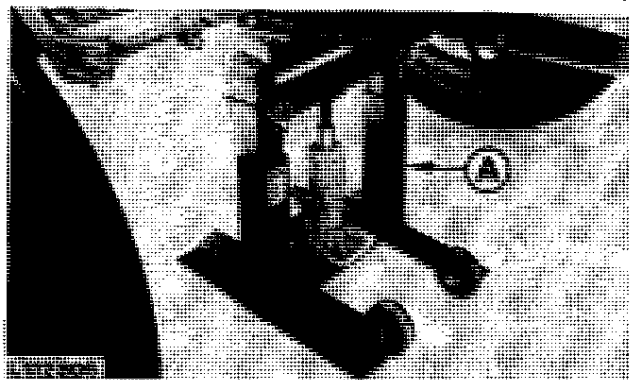
– Pinion sleeve half to wheel hub	215 Nm (160 ft-lb)
– Key sleeve half to wheel hub	400 Nm (300 ft-lb)
– Rear wheel rim to wheel hub	230 Nm (170 ft-lb)

WHEELS-LB38010BE-010888

REMOVING A FRONT WHEEL

Raise tractor front end and using support stand JT05725 (A), support tractor safely.

Remove front wheel.



L112806-LB28010AE-010886

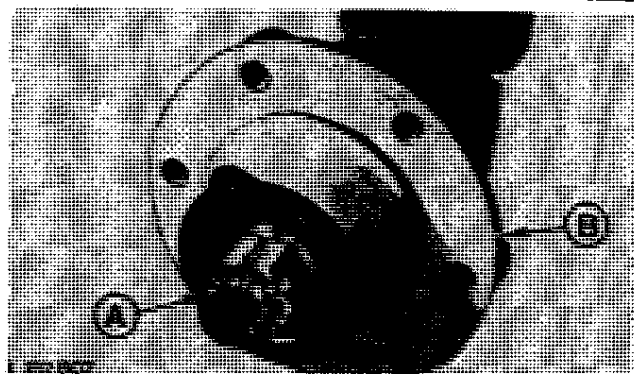
REMOVING WHEEL HUB

Remove hub cap and discard gasket (on tractors with standard front axles only).

Remove slotted nut (A).

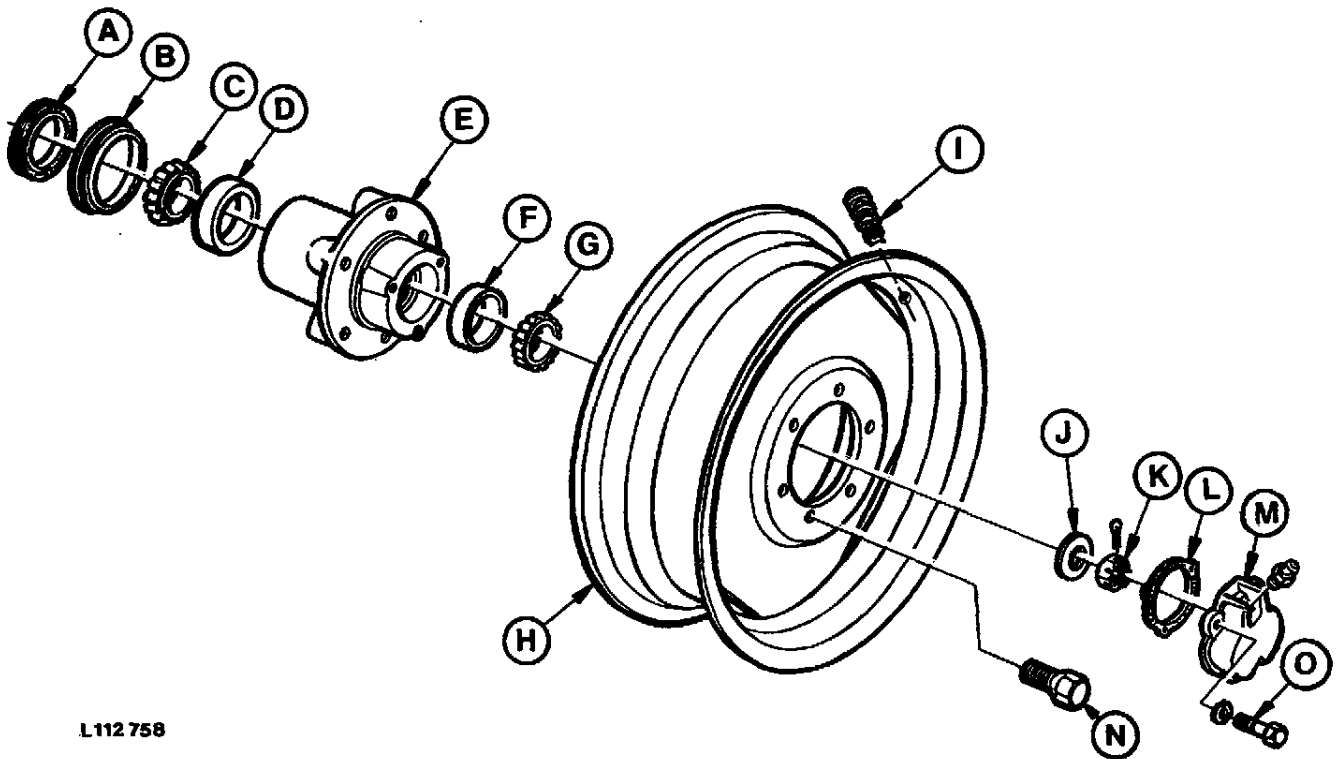
Remove and disassemble wheel hub (B).

NOTE: The front hubs have recesses for easier removal of taper roller bearing cups.



L112807-LB38010AE-000287

**FRONT WHEEL - EXPLODED VIEW
(With Standard Front Axle)**



L112 758

A-Oil seal
B-Collar
C-Taper roller bearing cone
D-Taper roller bearing cup

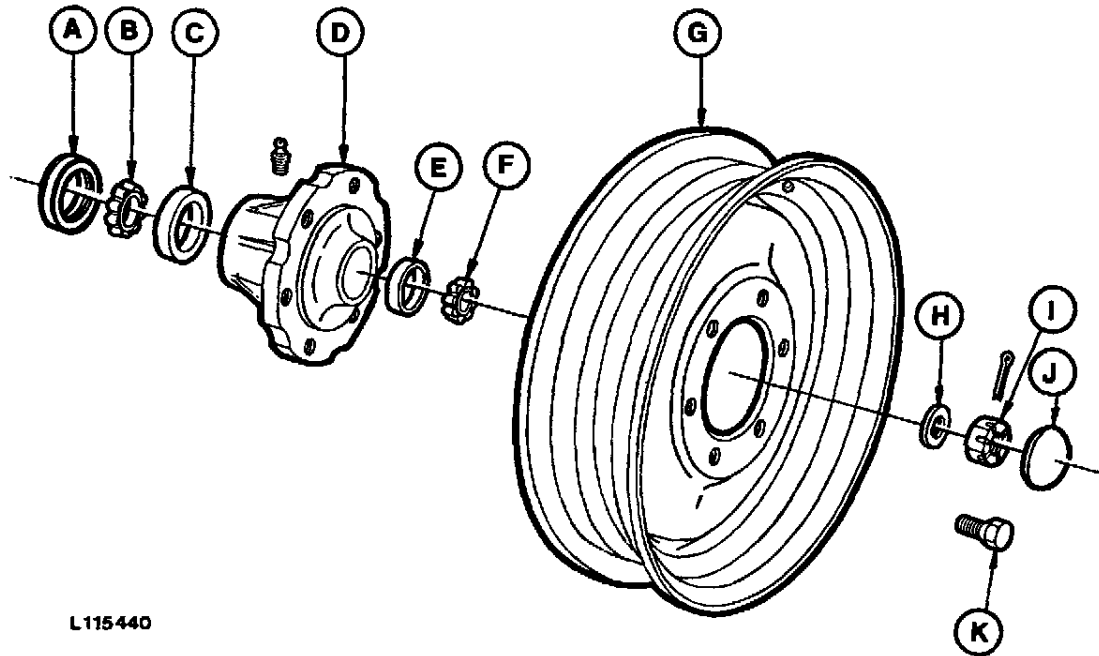
E-Wheel hub
F-Taper roller bearing cup
G-Taper roller bearing cone
H-Front wheel rim

I-Valve (with tubeless
tires only)
J-Washer
K-Slotted nut

L-Gasket
M-Hub cap
N-Wheel bolt (6 used)
O-Cap screw (3 used)

L112758-LB38010AE-000287

FRONT WHEEL - EXPLODED VIEW (With Low-Type Front Axle)



L115440

A-Oil seal
B-Taper roller bearing cone
C-Taper roller bearing cup

D-Wheel hub
E-Taper roller bearing cup
F-Taper roller bearing cone

G-Front wheel rim
H-Washer
I-Slotted nut

J-Hub cap
K-Wheel bolt (6 used)

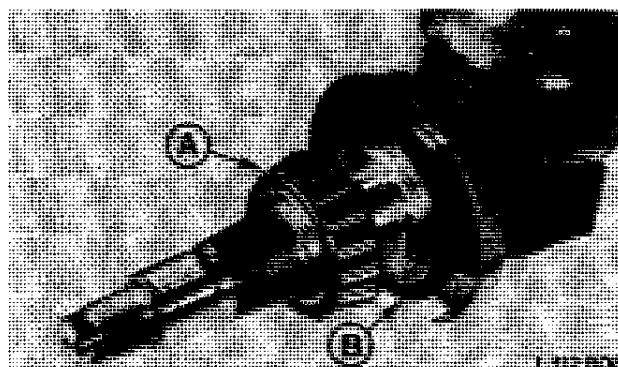
L115440-LB38010AE-000287

INSTALLING OIL SEAL (With Standard Front Axle)

NOTE: *Inscribed side of oil seal (B) must face away from knuckle and spindle assembly.*

Coat lips of oil seal with grease.

Install taper roller bearing cone (A).



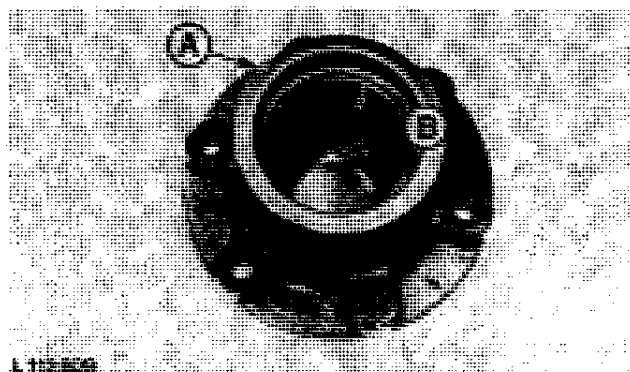
L112504-LB38010AE-000287

INSTALLING WHEEL HUB

With Standard Front Axle

Press taper roller bearing cups (B) and collar (A) into wheel hub.

Slide wheel hub onto spindle.



L112504-LB38010AE-000287

With Low-Type Front Axle

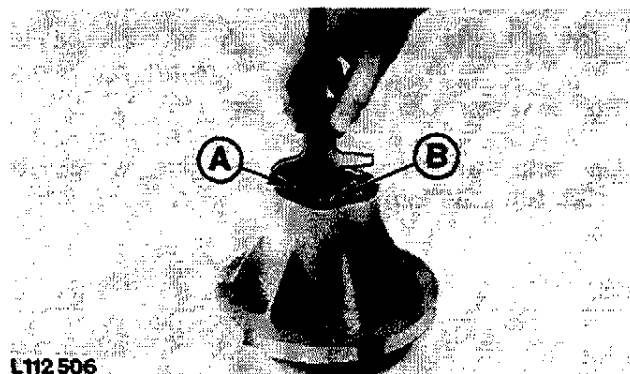
Press taper roller bearing cups into wheel hub.

Install taper roller bearing cone (B) and oil seal (A).

NOTE: *Sealing lip of oil seal must face away from wheel hub.*

The clearance between oil seal and face of wheel hub must measure 9 mm (0.35 in.).

Slide wheel hub onto spindle.



L112506-LB38010AE-000287

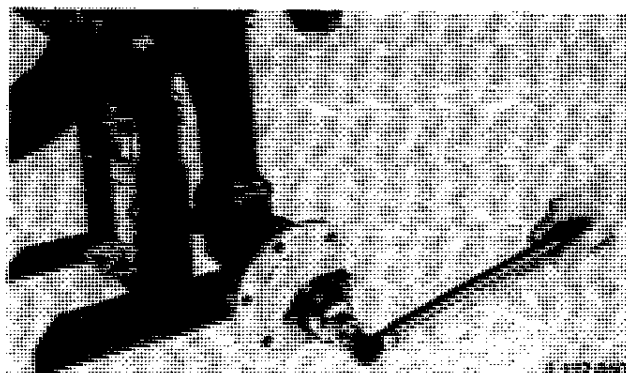
ADJUSTING FRONT WHEEL BEARINGS

Install taper roller bearing cone, washer and slotted nut.

Tighten slotted nut to 50 Nm (35 ft-lb). Rotate wheel hub several times and tighten slotted nut again to the same torque.

NOTE: After tightening slotted nut to prescribed torque, always turn nut back to next slot and secure with cotter pin.

Attach hub cap and pack wheel hub with grease.

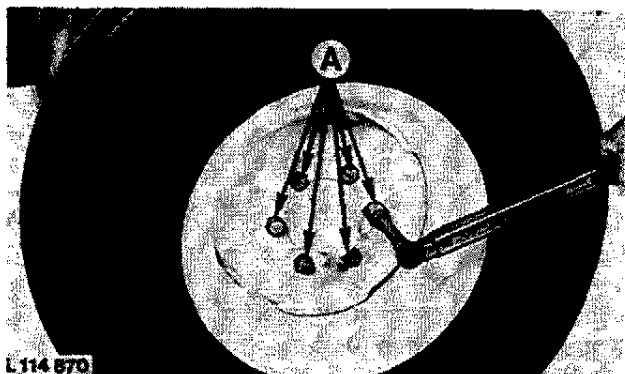


L112810-LB38010AE-010287

INSTALLING FRONT WHEEL

Tighten wheel bolts (A) to 150 Nm (110 ft-lb).

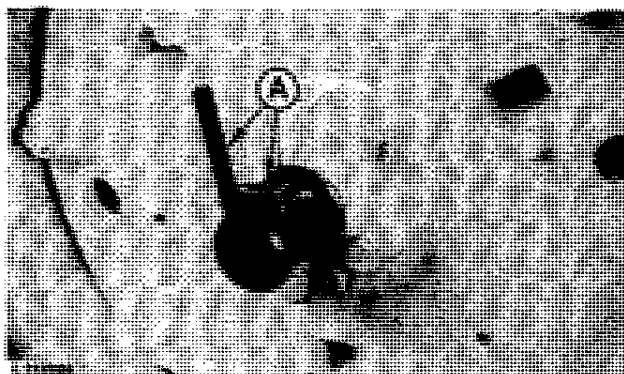
On tractors with front wheel drive, tighten wheel nuts to 300 Nm (220 ft-lb).



L114870-LB38010AE-010888

REMOVING SNAP RING (With Rack-and-Pinion Axle)

Remove snap ring using special tool JDG-18 (A).



L112086-LB38010AE-010888

REMOVING A REAR WHEEL (With Rack-and-Pinion Axle)

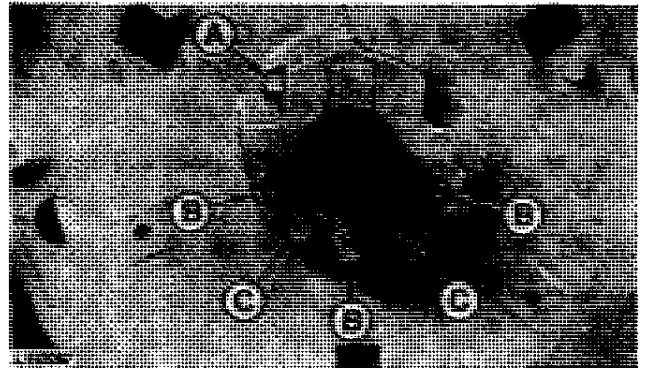
Loosen cap screws (B).

Jack up tractor at rear and support safely.

Tighten jack screws (C) until wheel sleeve half comes loose.

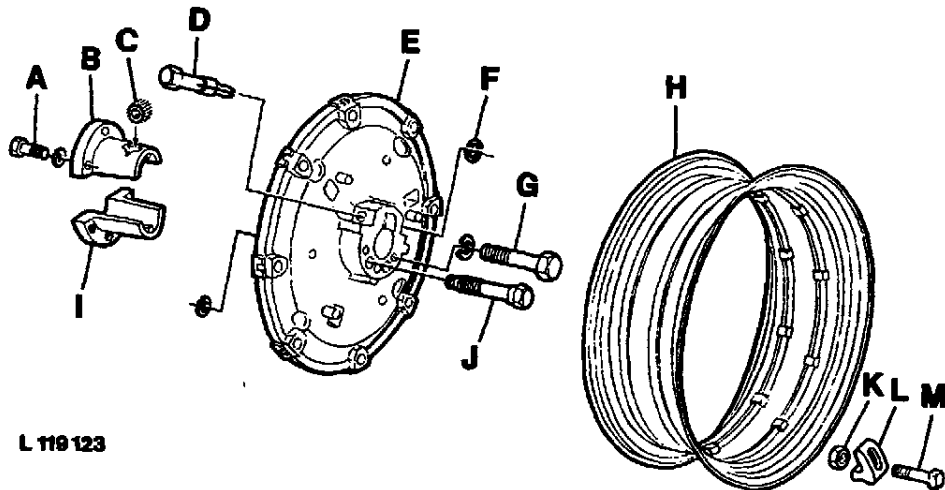
By turning pinion shaft (A), move wheel outwards on rear axle.

NOTE: Before removing rear wheel, remove pinion shaft to avoid breaking pinion.



L112087-LB38010AE-010888

REAR WHEEL - EXPLODED VIEW (Tractors with Rack-and-Pinion Axle)



L 119123

A-Cap screw (3 used)
B-Pinion sleeve half
C-Pinion
D-Pinion shaft

E-Wheel hub
F-Snap ring
G-Cap screw (3 used)

H-Rear wheel rim
I-Key sleeve half
J-Jack screw (2 used)

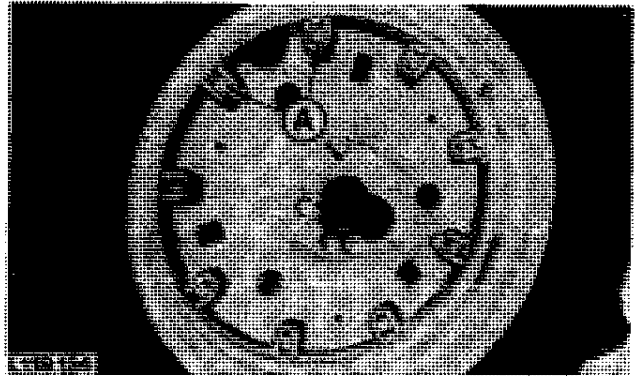
K-Hex. nut (8 used)
L-Rim clamp (8 used)
M-Square head bolt (8 used)

L119123-LB38010AE-010888

TIGHTENING RIMS (With Cast Rear Wheels; Rack-and-Pinion and Flanged Axles)

Tighten nuts of square head bolts (A) to 230 Nm (170 ft-lb).

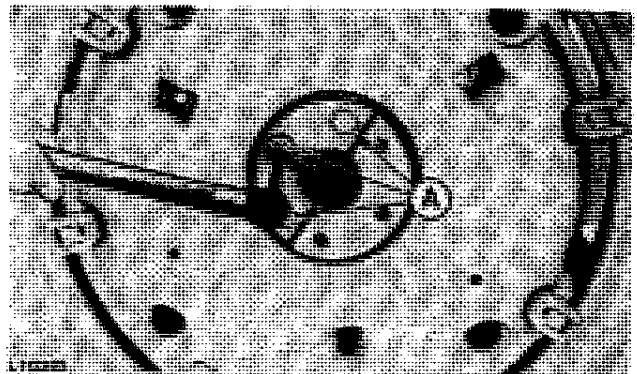
NOTE: Wobble measured at rim bead must not exceed 9.5 mm (3/8 in.).



L119124-LB28010AE-000488

INSTALLING PINION SLEEVE HALF (With Rack-and-Pinion Axle)

Tighten cap screws (A) to 215 Nm (160 ft-lb).



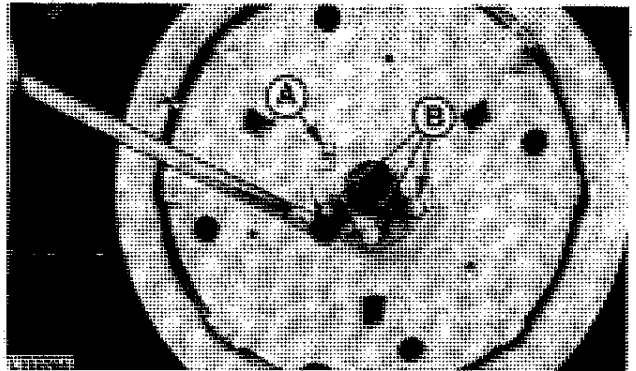
L112203-LB38010AE-010888

INSTALLING A REAR WHEEL (With Rack-and-Pinion Axle)

NOTE: Install pinion shaft (A) only after installing the rear wheel. shaft (A).

Tighten cap screws (B) to 400 Nm (300 ft-lb).

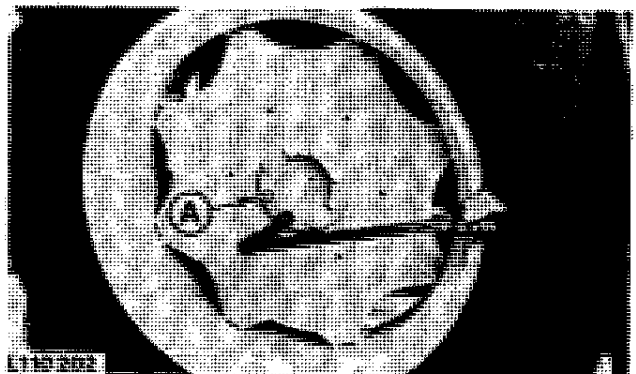
NOTE: Drive tractor approx. 50 m (160 ft.) and then tighten cap screws again to 400Nm (300ft-lb).



L112204-LB38010AE-010888

INSTALLING A REAR WHEEL (With Flanged Rear Axle)

Tighten cap screws (A) to 400 Nm (300 ft-lb).



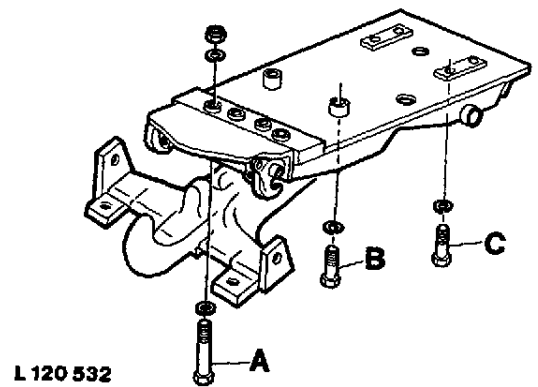
L110202-LB28010AE-010488

Group 15 "AXLA" PICK-UP TRAILER HITCH

INSTALLING TRAILER HITCH

Earlier Type

Tighten cap screws (A) to 135 Nm (100 ft-lb), cap screws (B) to 160 Nm (120 ft-lb) and cap screws (C) to 120 Nm (85 ft-lb).



L120532-LB38015AE-010888

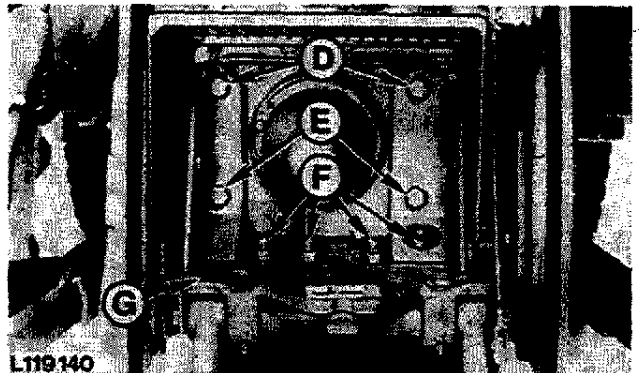
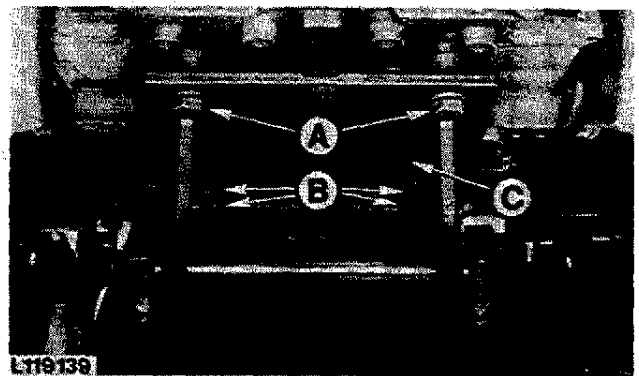
Later Type

To attach mounting bracket (C), tighten cap screws (A) to 120 Nm (85 ft-lb) and cap screws (B) to 135 Nm (100 ft-lb).

To attach trailer hitch (G), install two cap screws (E) below PTO and tighten to 10 to 15 Nm (7 to 10 ft-lb).

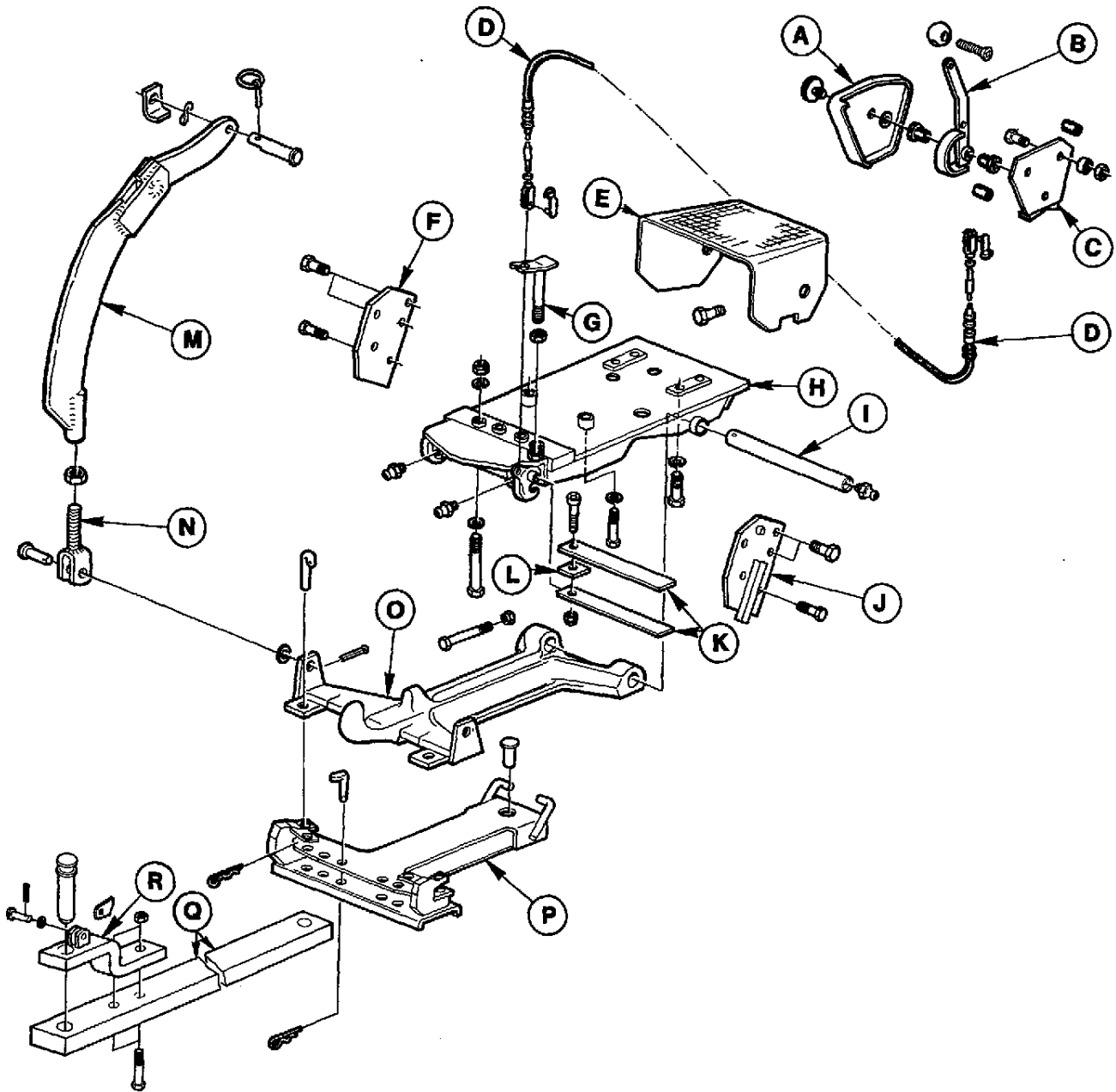
Install hex. socket screws (F) with hex. nuts and tighten to 160 Nm (85 ft-lb).

Retighten cap screws (E) to 120 Nm (85 ft-lb) and tighten cap screws (D) to 120 Nm (85 ft-lb).



L119139,L119140-LB38015AE-010888

"AXLA" PICK-UP TRAILER HITCH – EXPLODED VIEW
(Earlier Type Without Increased Lifting Capacity)



L120533

A-Control lever housing
B-Control lever
C-Mounting plate
D-Control cable
E-PTO guard

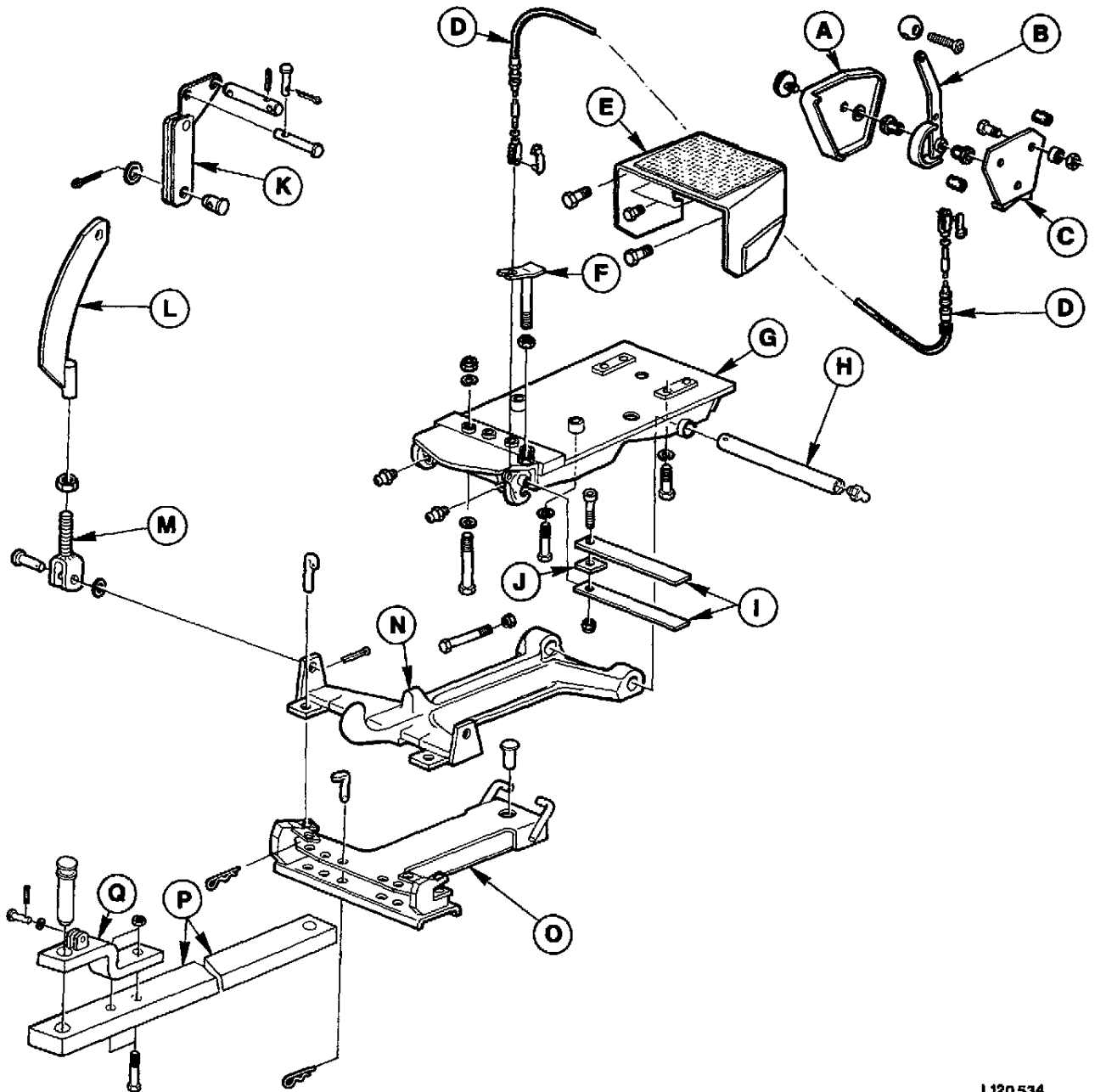
F-Support
G-Control cable bracket
H-Mounting bracket
I-Shaft

J-Support
K-Leaf spring (2 used)
L-Spacer
M-Brace (2 used)

N-Adjusting screw (2 used)
O-Trailer hitch
P-Drawbar bracket
Q-Drawbar
R-Strap

L120533-LB38015AE-010888

"AXLA" PICK-UP TRAILER HITCH - EXPLODED VIEW
(Earlier Type With Increased Lifting Capacity)



L120 534

A-Control lever housing
B-Control lever
C-Mounting plate
D-Control cable
E-PTO guard

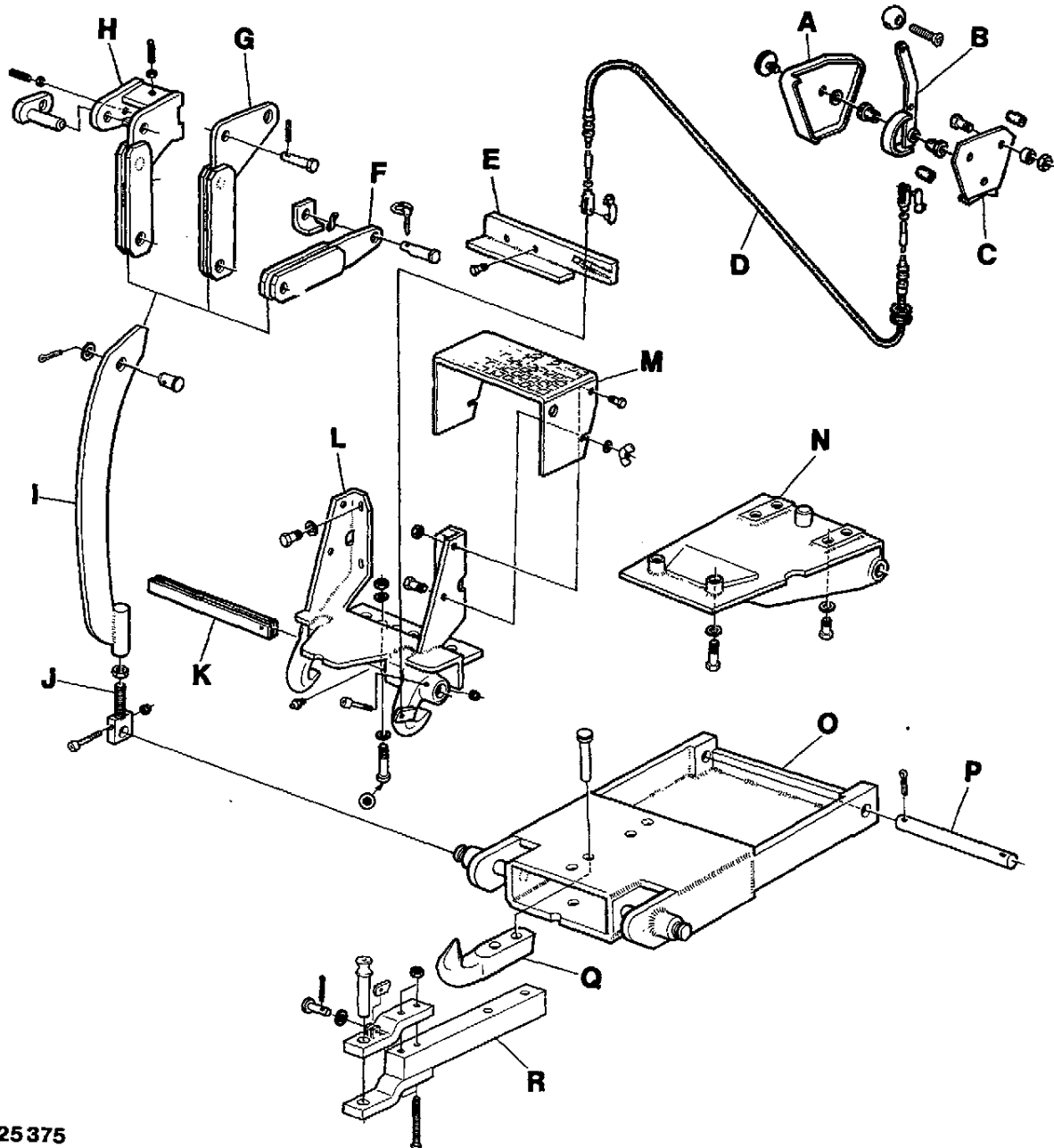
F-Control cable bracket
G-Mounting bracket
H-Shaft
I-Leaf spring (2 used)

J-Spacer plate
K-Lift arm extension (2 used)
L-Brace (2 used)
M-Adjusting screw (2 used)

N-Trailer hitch
O-Drawbar bracket
P-Drawbar
Q-Strap

L120534-LB38015AE-010888

**"AXLA" PICK-UP TRAILER HITCH - EXPLODED VIEW
(Later Type)**



L 125 375

A—Control lever housing
B—Control lever
C—Mounting plate
D—Control cable
E—Bracket

F—Extension (2 used)
G—Extension (2 used)*
H—Extension (2 used)**
I—Brace (2 used)

J—Adjusting screw
K—Leaf spring (2 used)
L—Trailer hitch
M—PTO guard

N—Console
O—Frame
P—Shaft
Q—Hook
R—Hitch

* With increased lifting capacity

** With lift arm extension

L125375-LB38015AE-010888

"Axla" Pick-Up Trailer Hitch

ADJUSTING "AXLA" PICK-UP TRAILER HITCH

Earlier Type

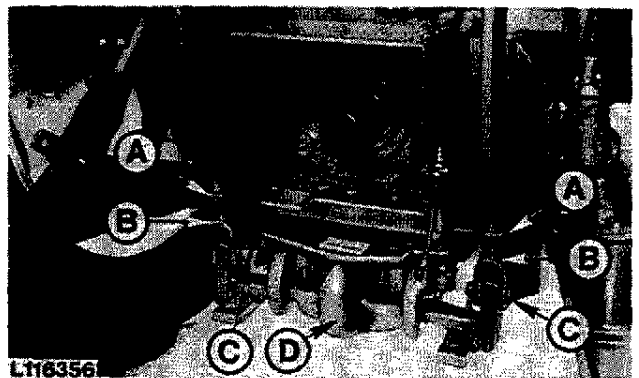
Fully raise rockshaft lift arms with braces.

Press hitch (D) until it lies against bracket stop.

Turn adjusting screws (B) into braces until bores of adjusting screws are aligned with bores of hitch.

Lower hitch slightly and loosen adjusting screws (B) one full turn.

Install clevis pins (C) and lock adjusting screws (B) with hex. nuts (A).



L116356-LB48015AE-010687

Later Type

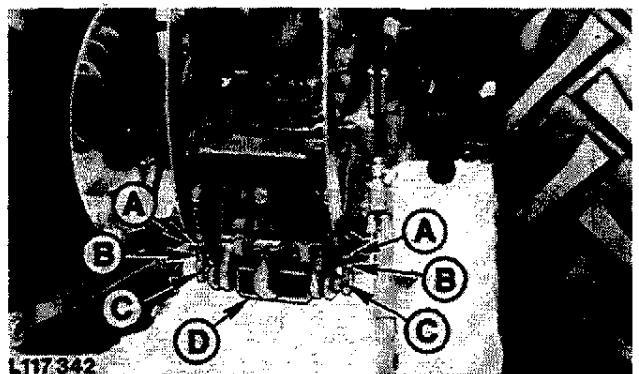
Fully raise rockshaft lift arms with braces.

Press hitch (D) until it lies against bracket stop.

Turn adjusting screws (B) into braces until bores of adjusting screws are aligned with bores of hitch.

Lower hitch slightly and loosen adjusting screws (B) by half a turn.

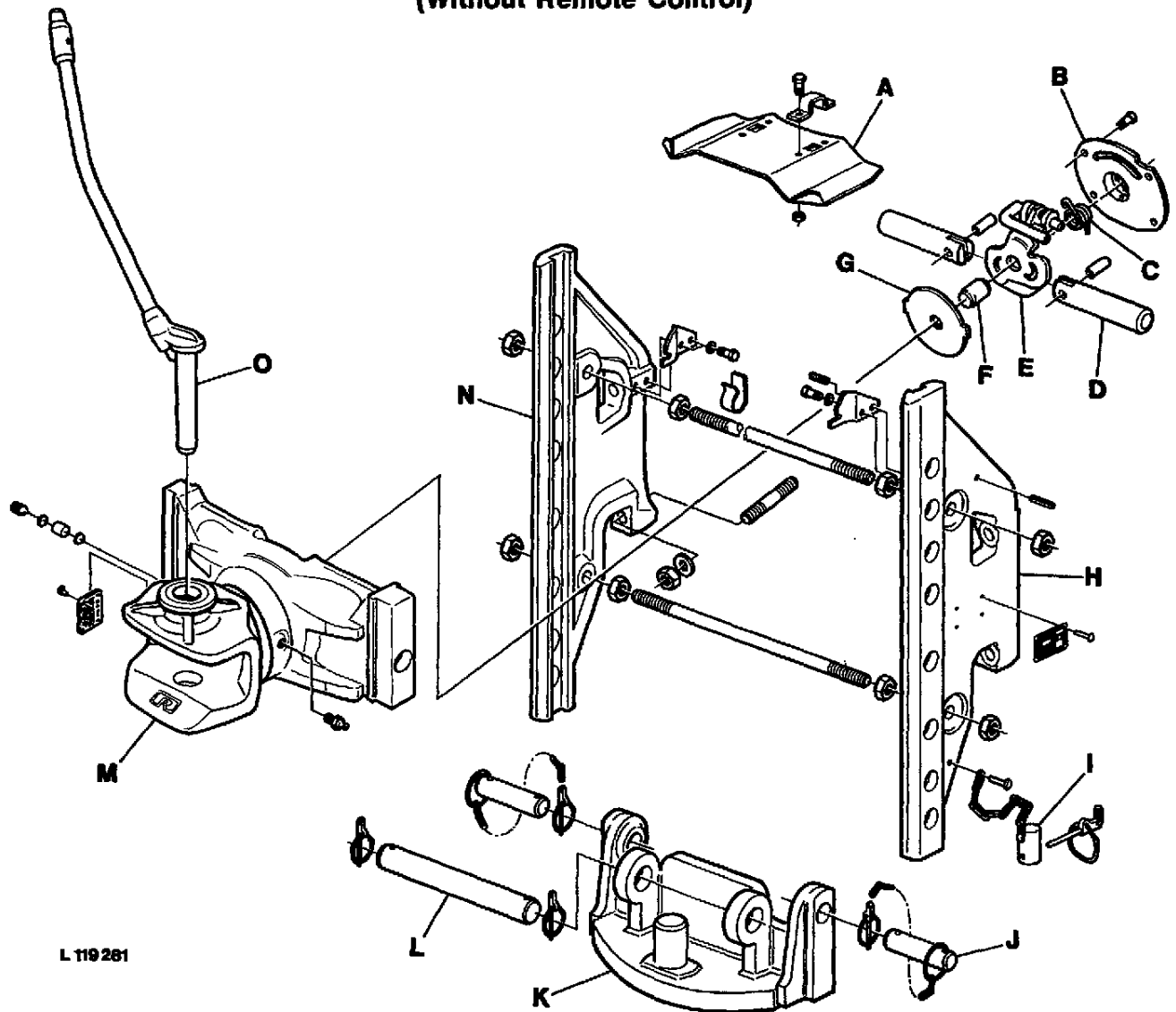
Install cap screws (C) with hex. nuts and lock adjusting screws (B) with hex. nuts (A).



L117342-LB48015AE-010687

Group 20
HEIGHT-ADJUSTABLE TRAILER HITCH

HEIGHT-ADJUSTABLE TRAILER HITCH - EXPLODED VIEW
(Without Remote Control)



L 119 281

A-PTO guard
B-Cover
C-Torsion spring
D-Locking bolt (2 used)
E-Cam plate

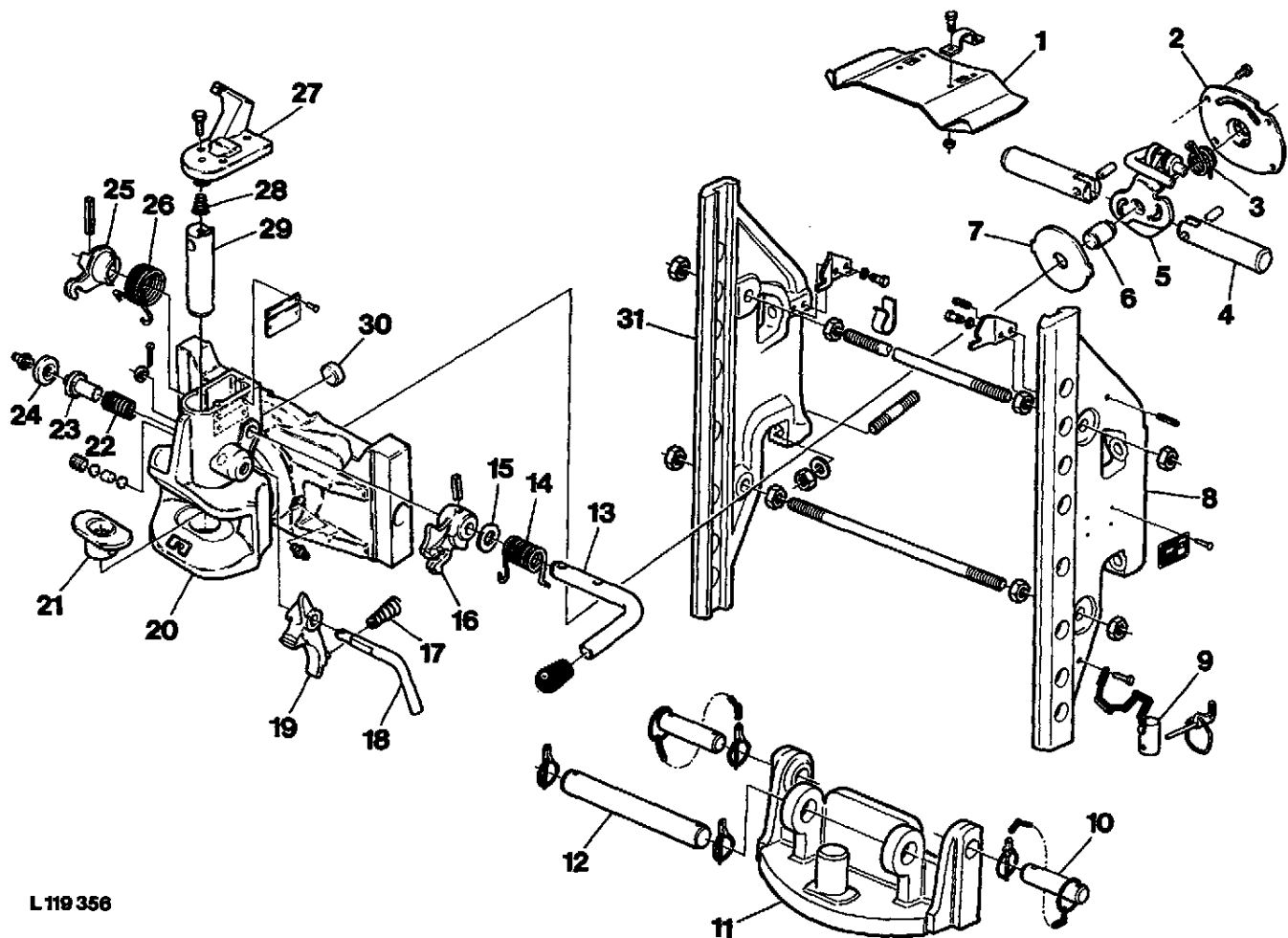
F-Bearing pin
G-Disk
H-Guide rail, right-hand
I-Safety bolt
J-Bearing pin (2 used)*

K-Low-position trailer hitch*
L-Locking bolt*
M-Trailer hitch
N-Guide rail, left-hand
O-Hitch pin

* When equipped

L119281-LB38020AE-010888

HEIGHT-ADJUSTABLE TRAILER HITCH - EXPLODED VIEW (With Remote Control)



L119356

- 1-PTO guard
- 2-Cover
- 3-Torsion spring
- 4-Locking bolt (2 used)
- 5-Cam plate
- 6-Bearing pin
- 7-Disk
- 8-Guide rail, right-hand

- 9-Safety bolt
- 10-Bearing pin (2 used)*
- 11-Low-position trailer hitch*
- 12-Locking bolt*
- 13-Hand lever
- 14-Torsion spring
- 15-Washer
- 16-Locking catch

- 17-Pressure spring
- 18-Locking lever
- 19-Locking lever
- 20-Trailer hitch
- 21-Bushing with ball
- 22-Pressure spring
- 23-Safety control pin

- 24-Cover
- 25-Cable lever
- 26-Return spring
- 27-Cover
- 28-Pressure spring
- 29-Hitch pin
- 30-Cover
- 31-Guide rail, left-hand

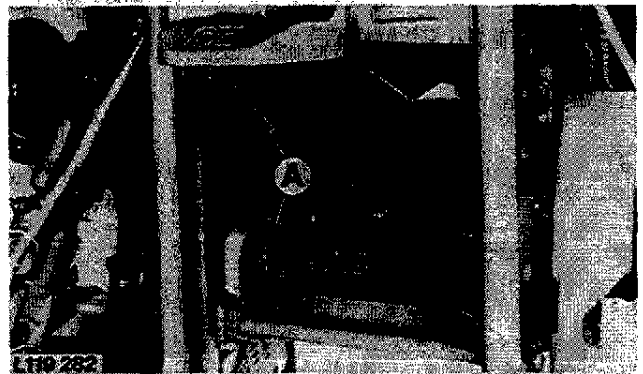
* When equipped

L119356-LB38020AE-010888

Height-Adjustable Trailer Hitch

ATTACHING GUIDE RAILS

Tighten hex. nuts (A) securing guide rails to 500 Nm (370 ft-lb).



L119282-LB38020AE-010888

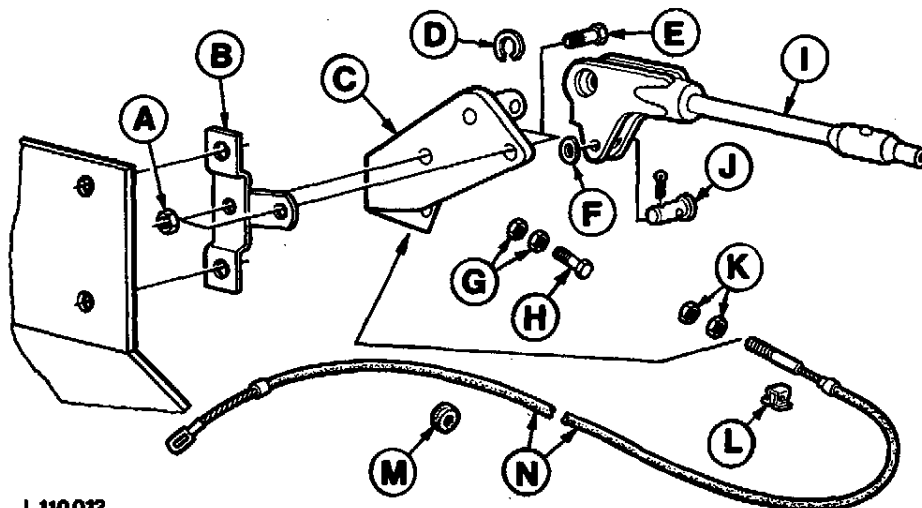
INSTALLING LOW-POSITION TRAILER HITCH

NOTE: The low-position trailer hitch (A) must not be installed in the lowest bore of the guide rails.



L119420-LB38020AE-010888

REMOTE CONTROL, EXPLODED VIEW



L 110012

A—Hex. nut (2 used)
B—Bracket
C—Plate
D—Snap ring
E—Cap screw (2 used)

F—Washer
G—Hex. nuts
H—Cap screw
I—Control lever

J—Pin
K—Hex. nuts
L—Clamp
M—Cable sleeve
N—Bowden cable

L110012-LA78015AE-250285

ADJUSTING REMOTE CONTROL

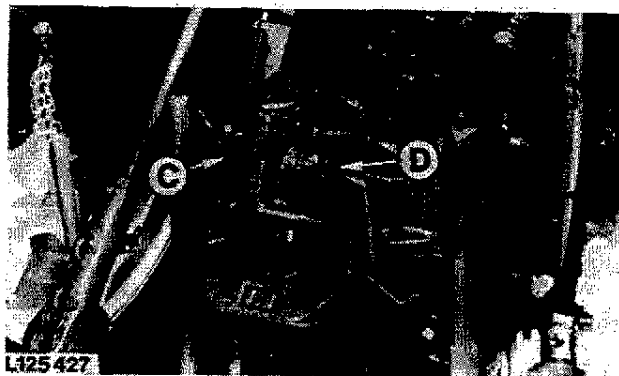
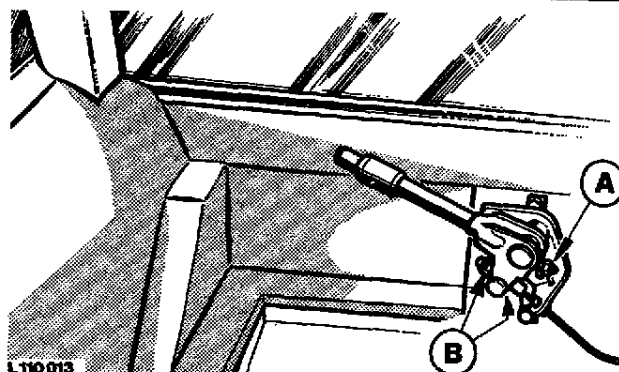
Close trailer hitch.

Move control lever to latched position, adjust stop screw (A).

Adjust bowden cable with hex. nuts (B) until control lever (C) starts to rise.

By means of control lever pull hitch pin to top position. Release control lever. Control lever must return to latched position by means of lever return spring.

IMPORTANT: Check closing of hitch by raising and lowering control lever on trailer hitch, making sure safety control pin (D) is fully depressed when hitch is closed.



L110013, L125427-LB38020AE-010888

Section 90

OPERATOR'S CABS - REPAIR

		2250	2450	2650	2650 N	2850
05 - SAFE HANDLING OF REFRIGERANTS						
Safety precautions	05-1	x	x	x		x
Safety equipment	05-1	x	x	x		x
Safe handling and storage of pressure gas containers	05-2	x	x	x		x
Welding and soldering regulations	05-2	x	x	x		x
Cleaning the air conditioning system	05-3	x	x	x		x
Discharging refrigerant	05-3	x	x	x		x
Handling refrigerant	05-3	x	x	x		x
Charging the system	05-4	x	x	x		x
06 - SERVICING AIR CONDITIONING SYSTEM						
Special tools	06-1	x	x	x		x
Specifications	06-1	x	x	x		x
Discharging the system	06-2	x	x	x		x
Evacuating the system	06-3	x	x	x		x
Charging the system	06-4	x	x	x		x
Adding refrigerant to a partially discharged system	06-5	x	x	x		x
Leakage test	06-6	x	x	x		x
Checking oil level in compressor	06-7	x	x	x		x
Adding refrigerant oil	06-7	x	x	x		x
Oil capacity in other components	06-8	x	x	x		x

KAB-LS39001AE-010888

07 – COMPRESSOR**(Up to Tractor Serial No. 646 949L)**

2250
2450
2650
2650 N
2850

Special tools	07-1	x	x	x	x
Specifications	07-3	x	x	x	x
Torques for hardware	07-3	x	x	x	x
Compressor clutch assembly, sectional view ...	07-4	x	x	x	x
Compressor clutch assembly, exploded view ...	07-5	x	x	x	x
Removing compressor	07-6	x	x	x	x
Shaft seal leak test	07-6	x	x	x	x
Discharge to suction side leak test	07-7	x	x	x	x
Removing lock nut	07-8	x	x	x	x
Removing hub and drive plate	07-8	x	x	x	x
Removing shaft seal seat	07-9	x	x	x	x
Removing shaft seal assembly	07-9	x	x	x	x
Removing V-belt pulley with bearing	07-10	x	x	x	x
Removing coil housing	07-10	x	x	x	x
Installing V-belt pulley with bearing	07-11	x	x	x	x
Installing O-ring for seal ring seat	07-11	x	x	x	x
Installing shaft seal ring assembly	07-12	x	x	x	x
Installing rear bearing shield	07-12	x	x	x	x
Installing front bearing shield	07-13	x	x	x	x
Positioning drive key	07-13	x	x	x	x
Installing hub and drive plate	07-14	x	x	x	x
Installing compressor	07-15	x	x	x	x
Tensioning compressor V-belt	07-15	x	x	x	x

08 – COMPRESSOR**(From Tractor Serial No. 646 950L)**

Special tools	08-1	x	x	x	x
Specifications	08-2	x	x	x	x
Torques for hardware	08-3	x	x	x	x
Removing compressor	08-3	x	x	x	x
Checking compressor charge	08-4	x	x	x	x
Checking shaft seal	08-6	x	x	x	x
Disassembling compressor	08-7	x	x	x	x
Repairing valve plates	08-9	x	x	x	x
Repairing cylinder and piston	08-9	x	x	x	x

08 – COMPRESSOR

(From Tractor Serial No. 646 950L) – Contd.

		2250	2450	2650	2650 N	2850
Repairing electromagnetic clutch components .	08-10	x	x	x		x
Checking V-belt pulley bearing	08-10	x	x	x		x
Installing V-belt pulley bearing	08-10	x	x	x		x
Replacing shaft seal seat	08-11	x	x	x		x
Assembling compressor	08-11	x	x	x		x
Assembling electromagnetic clutch	08-12	x	x	x		x
Clearance between clutch halves	08-12	x	x	x		x
Repairing connecting flanges	08-13	x	x	x		x
Installing compressor	08-14	x	x	x		x
Tensioning compressor V-belt	08-14	x	x	x		x

09 – COMPONENTS OF AIR CONDITIONING SYSTEM

Torques for hardware	09-1	x	x	x		x
Disconnecting refrigerant lines	09-1	x	x	x		x
Refrigerant line coupling, exploded view	09-1	x	x	x		x
Removing and installing condenser	09-2	x	x	x		x
Removing and installing receiver-dryer	09-2	x	x	x		x
Removing and installing evaporator and expansion valve	09-3	x	x	x		x
Removing and installing thermostat switch	09-3	x	x	x		x
Removing and installing compressor relief valve	09-4	x	x	x		x
Removing and installing high and low pressure switches	09-4	x	x	x		x

		2250	2450	2650	2650 N	2850
10 – CAB VENTILATION AND HEATING – SG2 CAB						
Cab ventilation and heating, exploded view	10-1	x	x	x		x
Removing fan assembly and radiator	10-2	x	x	x		x
Removing radiator (with air conditioning system)	10-2	x	x	x		x
Removing hot water hoses	10-2	x	x	x		x
Removing air filter	10-3	x	x	x		x
Removing air circulation filter	10-3	x	x	x		x
Cab platform heating, exploded view	10-4	x	x	x		x
Shut-off valve, cab platform heating	10-5	x	x	x		x

15 – CAB VENTILATION AND HEATING – SG2 LOW PROFILE CAB

Cab ventilation and heating, exploded view	15-1	x	x	x		x
Removing roof interior	15-2	x	x	x		x
Removing paneling and air louvers	15-2	x	x	x		x
Removing fan assembly and radiator	15-3	x	x	x		x
Removing hot water hoses	15-3	x	x	x		x
Removing air filter	15-4	x	x	x		x
Removing air circulation filter	15-4	x	x	x		x

20 – CAB VENTILATION AND HEATING – MC1 CAB

Cab ventilation and heating, exploded view	20-1	x	x	x		x
Ventilation in cab roof, exploded view	20-2	x	x	x		x
Removing fan assembly and radiator	20-3	x	x	x		x
Removing fan in cab roof	20-3	x	x	x		x
Removing hot water hoses	20-4	x	x	x		x
Removing air filter	20-4	x	x	x		x

25 – OPERATOR'S SEATS

Standard operator's seat DS44/L1 (without cab), exploded view	25-1	x	x	x		x
De Luxe operator's seat DS44/2H-4 (without cab), exploded view	25-2	x	x	x		x
De Luxe operator's seat DS44/90A (with cab), exploded view	25-3	x	x	x		x
De Luxe operator's seat DS44/8H (on narrow tread tractors), exploded view	25-4				x	

25 – OPERATOR'S SEATS (CONTD).

		2250	2450	2650	2650 N	2850
De Luxe operator's seat DS44/1H-4G (with SG2 and MC1 cabs), exploded view	25-5	x	x	x		x
Arm rests and back rest – De Luxe operator's seat DS44/1HA-4G, exploded view	25-6	x	x	x		x
Super De Luxe operator's seat DS85/90A – upper section (with SG2 cab), exploded view	25-7	x	x	x		x
Super De Luxe operator's seat – lower section, DS85/90A (with SG2 cab), exploded view	25-8	x	x	x		x

30 – SG2 CAB

Special tools	30-1	x	x	x		x
Torques for hardware	30-1	x	x	x		x
Removing SG2 cab	30-2	x	x	x		x
Removing cab door	30-2	x	x	x		x
Door stop and handle, exploded view	30-3	x	x	x		x
Removing cab outer roof	30-3	x	x	x		x
Cab outer roof, exploded view	30-4	x	x	x		x
Removing hatch	30-5	x	x	x		x
Hatch, exploded view	30-5	x	x	x		x
Removing cab inner roof	30-6	x	x	x		x
Cab inner roof (without hatch), exploded view	30-7	x	x	x		x
Cab inner roof (with hatch), exploded view	30-8	x	x	x		x
Cab inner roof (with low profile cab), exploded view	30-9	x	x	x		x
Installing cab inner roof	30-9	x	x	x		x
Cab headliner, exploded view	30-10	x	x	x		x
Cab frame, exploded view	30-11	x	x	x		x
Rear window, exploded view (up to tractor Serial No. 627 805L)	30-12	x	x	x		x
Rear window, exploded view (from tractor Serial No. 627 806L)	30-13	x	x	x		x
Side window, exploded view	30-14	x	x	x		x
Removing cab windows	30-15	x	x	x		x
Installing cab windows	30-15	x	x	x		x
Windshield wiper and windshield washer assembly, exploded view	30-16	x	x	x		x

2250
2450
2650
2650N
2850

30 – SG2 CAB (Contd.)

Removing right-hand windshield wiper motor ...	30-16	x	x	x	x
Removing left-hand windshield wiper motor ...	30-17	x	x	x	x
Windshield wiper motor, exploded view	30-17	x	x	x	x
Cab mounting brackets, exploded view	30-18	x	x	x	x
Removing and installing cab mounting brackets	30-18	x	x	x	x

35 – MC1 CAB

Torques for hardware	35-1	x	x	x	x
Removing MC1 cab	35-2	x	x	x	x
Removing cab door	35-2	x	x	x	x
Cab door, exploded view	35-3	x	x	x	x
Sealing cab door	35-4	x	x	x	x
Door lock, exploded view	35-4	x	x	x	x
Removing cab roof	35-4	x	x	x	x
Cab roof, exploded view	35-5	x	x	x	x
Removing hatch	35-6	x	x	x	x
Hatch, exploded view	35-6	x	x	x	x
Cab frame, exploded view	35-7	x	x	x	x
Side window, exploded view	35-8	x	x	x	x
Windshield, exploded view	35-9	x	x	x	x
Rear window, exploded view	35-10	x	x	x	x
Windshield wiper and windshield washer assembly, exploded view	35-11	x	x	x	x
Removing windshield wiper motor	35-11	x	x	x	x
Windshield wiper motor, exploded view	35-12	x	x	x	x
Cab mounting brackets, exploded view	35-13	x	x	x	x
Removing and installing cab mounting brackets	35-13	x	x	x	x

40 – 2-POST ROLL GUARD

Torques for hardware	40-1	x	x	x	x
Repairing 2-post roll guard	40-1	x	x	x	x
2-post roll guard, exploded view	40-2	x	x	x	x

45 – 4-POST ROLL GUARD

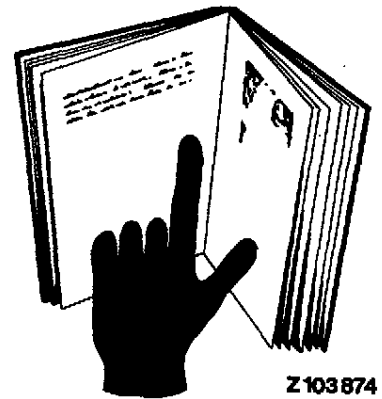
Torques for hardware	45-1	x	x	x	x
Repairing 4-post roll guard	45-1	x	x	x	x

Group 05 SAFE HANDLING OF REFRIGERANTS

SAFETY PRECAUTIONS

Certain safety rules must be strictly adhered to when handling refrigerants and servicing air conditioning systems. Employer's Liability Insurance safety rules also cover precautions regarding operation, service and repair of air conditioning systems, the most important being as follows:

1. Air conditioners may only be operated, serviced or repaired by authorized, trained personnel.
2. Adolescents should not be allowed to carry out service work on air conditioning systems involving discharging of refrigerant, unless trade training of adolescents over 16 years old requires such work. In this case, however, the adolescent must be supervised by a trained adult.
3. Before repairing components carrying refrigerant, discharge refrigerant as far as necessary for safe repair work.
4. When working with fire, comply with corresponding safety regulations.
Refrigerant is odorless and colorless; it cannot be detected in small quantities.



Z103874-Z1229015AE-011084

SAFETY EQUIPMENT

This equipment consists of safety glasses, safety gloves and possibly a breathing mask. Prepare a 10% boric acid solution for rinsing the eyes and a solution consisting of one part essence of vinegar and five parts water for washing affected parts of the body. Also provide a first aid kit.

SICHE-Z1229015AE-011084

SAFE HANDLING AND STORAGE OF PRESSURE GAS CONTAINERS

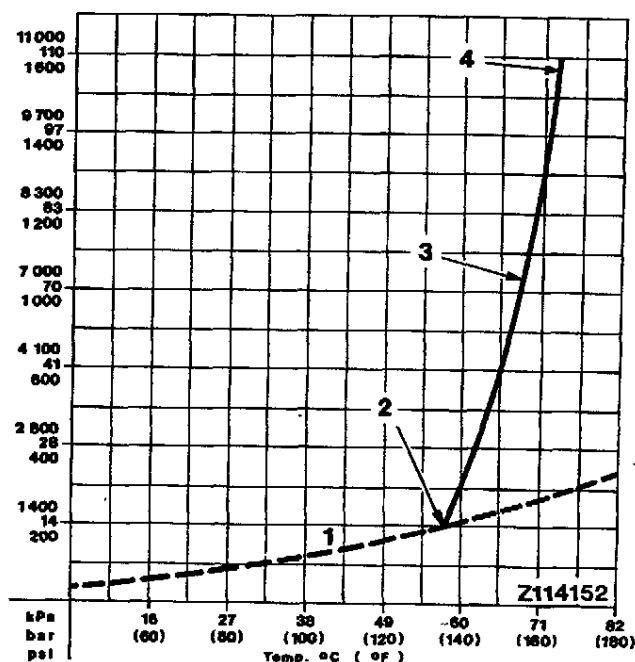
Do not overheat refrigerant containers. The graph on pressure characteristics of refrigerant shows that beyond 49°C (120°F), pressure build-up is tremendous. This can be extremely dangerous in 500 and 1000 g (1 and 2 lb) containers having very thin walls.

At temperatures above 54°C (129°F), refrigerant container is completely filled. Pressure increases with each degree rise in temperature.



CAUTION: For safety reasons, do not subject refrigerant containers to temperatures above 52°C (125°F).

- 1-Gas pressure
- 2-65 kg (143 lb) refrigerant container completely filled
- 3-Pressure increase in full container
- 4-CAUTION: Explosive pressure



Z114152-LB529005AE-011087

WELDING AND SOLDERING REGULATIONS

Refrigerant coming into contact with an open flame or very hot metal will produce phosgene gas which is poisonous and can make a person very sick when inhaled.

Heat produced during the welding process may cause system components to explode.



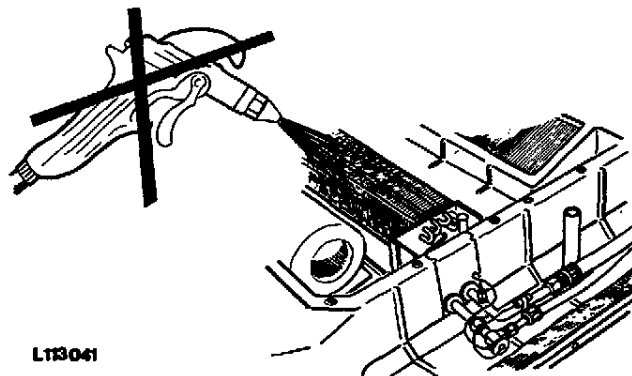
CAUTION: Refrigerant subjected to an open flame will result in phosgene gas which may be deadly. Inhaling the gas a little at a time can be cumulative, resulting in a toxic condition. A well-ventilated area with good circulation is the only safe working area.

KLIMAANL-LB529005BE-011087

CLEANING THE AIR CONDITIONING SYSTEM

Never clean air conditioning components with steam or compressed air.

Liquid condensing inside system components may cause serious damage.



L113041

L113041-LA729005AE-021285

DISCHARGING REFRIGERANT

Do not discharge refrigerant in an enclosed area.

Refrigerant gas is heavier than air; danger of asphyxiation, especially in workshop pits. When repairing air conditioning system, pay particular attention to leaks which will allow refrigerant gas to enter cab. Make sure cab and working areas are well ventilated.

SICHE-Z1290106E-001084

HANDLING REFRIGERANT

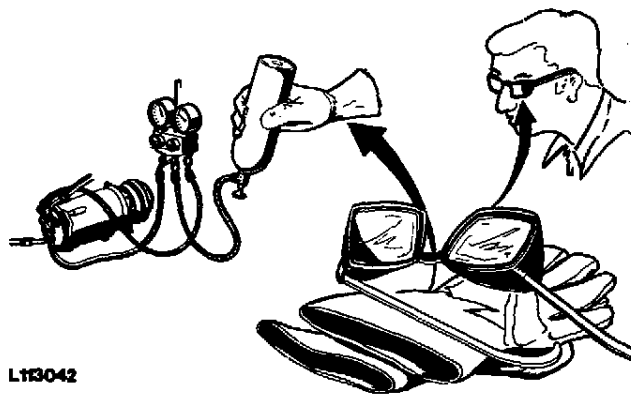
Do not handle refrigerant without suitable safety equipment.



CAUTION: When handling refrigerant, always wear safety glasses and leather gloves, otherwise serious personal injury may result, since refrigerant has a low boiling point -30°C (-22°F). If refrigerant strikes the eye, the eyeball may freeze. Freezing the eye can cause blindness.

If refrigerant should strike the eye, follow these instructions:

- Do not rub the eye.
- Rinse eye with cold water; preferably use a 1% boric acid solution. This will raise the temperature.
- Protect affected eye against entry of dirt.
- Wash affected parts of the body with water, or preferably with a solution consisting of one part essence of vinegar and five parts water.
- See a doctor immediately.



L113042

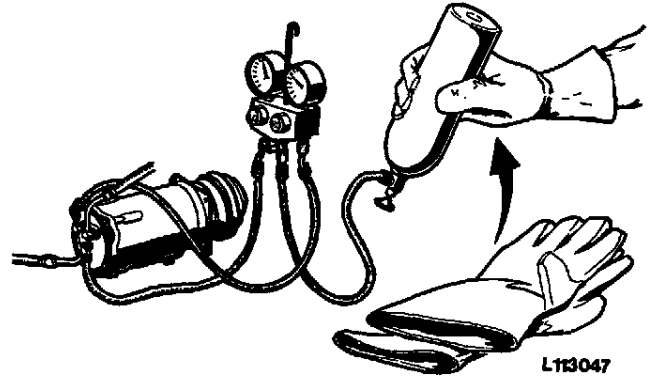
L113042-LA729005AE-021285

CHARGING THE SYSTEM

Always wear safety gloves when charging system.
Do not add anything but pure refrigerant and refrigerant oil into the system.



CAUTION: Frost will form on outside of refrigerant containers when wet, causing hand to freeze to container. This can occur when using warm water to heat container. If this happens, wet the container and your hand will thaw and be released.



When evacuating or discharging system, discharge refrigerant slowly.

Refrigerant has a great affinity for oil and carries approximately 8% of the oil in the system with it. Rapid discharging or evacuating will carry an excess amount of the oil out with the refrigerant.

Do not add anything but pure refrigerant and refrigerant oil into the system.

Any additional compound can contain foreign substances not compatible with the chemical composition of the refrigerant, causing it to become chemically unstable and to lose its good qualities.

L113047-LA729005AE-001285

Group 06 SERVICING AIR CONDITIONING SYSTEM

SPECIAL TOOLS

A—Discharging, evacuating,
charging and checking system



L108053-LA729005AE-020186

SPECIFICATIONS

FULL CHARGE

Refrigerant R-12 1.8 kg (4 lb)

PRESSURES

Evacuating system (at sea level), vacuum 100 kPa; 1 bar; 14.5 psi
(1000 mbar; 75 cm QS; 29 in. Hg)

Compressor high side pressure
(engine speed 2000 rpm) 1200 to 2000 kPa
(12 to 20 bar; 175 to 300 psi)

Compressor suction pressure
(engine speed 2000 rpm) 100 to 200 kPa
(1 to 2 bar; 10 to 30 psi)

THERMOSTAT SWITCH

Switch setting
Evaporator refrigerant temperature
Contact points open (low limit) -1°C (30°F)
Contact points closed (high limit) +3°C (37°F)

WART-LB29008AE-010488

SPECIFICATIONS (Contd.)

COMPRESSOR

Relief valve opens at 3000 kPa (30 bar; 440 psi)

Full compressor charge (new or service-exchange
compressor (Frigidaire-525 or Reniso KM oil) 330 ml (11 fl. oz.)

WART-LB29006BE-010488

DISCHARGING THE SYSTEM



CAUTION: To avoid injury, always wear safety glasses and gloves when servicing the system. Never discharge refrigerant into an area where there is an open flame. Refrigerant exposed to an open flame produces phosgene gas which is very poisonous.

Connect pressure test kit FKM10001-6* (C) as follows:

Close both hand valves on tester. Connect red hose to high pressure valve (B) and blue hose to low pressure valve (A) of compressor.

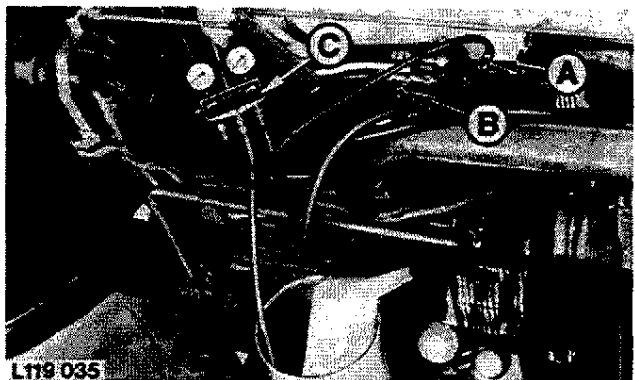
Place end of discharge hose into a clean container to collect any oil due to leakage.

Slowly open both valves one after the other. Should refrigerant foam, slightly close valves. Rapid discharge of refrigerant will lead to excessive loss of oil in the system.

NOTE: Measure amount of discharged oil so that a corresponding amount can be refilled later.

System is discharged when both gauges read "zero".

* Is part of tester FKM10001



L119035-LB29006AE-010488

EVACUATING THE SYSTEM



CAUTION: To avoid injury, always wear safety glasses and gloves when servicing the system.

NOTE: When evacuating the system all air is removed until a vacuum is built up. This is necessary whenever the system has been discharged, as air and moisture can enter the system openings before they are capped.

Connect pressure test kit FKM10001-6* as described under "Discharging the System".

Connect yellow hose to vacuum pump FKM10001-4* (A).

Open both valves and switch on pump.

System should have a vacuum of 100 kPa; 1 bar; 14.5 psi (1000 mbar; 75 cm QS; 29 in. Hg) within a period of five minutes.

NOTE: If specified vacuum is not obtained within a period of five minutes, then check all connections and if necessary, carry out a leakage test.

Close valves and switch off pump.

The gauge reading should not show a rise of more than 3.4 kPa; 0.034 bar; 0.5 psi (34 mbar; 2.5 cm QS; 1 in. Hg) within a period of five minutes.

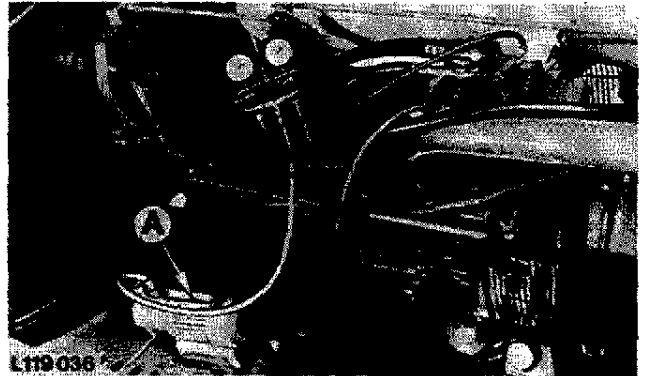
Again switch on pump and open both valves.

Evacuate the system for a period of at least 30 minutes.

Close valves and disconnect pump.

NOTE: Do not open system. Vacuum must be maintained until system is charged.

* Is part of tester FKM10001



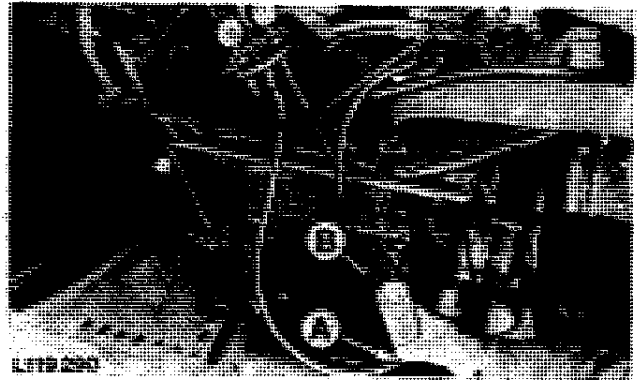
CHARGING THE SYSTEM



CAUTION: To avoid injury, always wear safety glasses and gloves when servicing the system. Never discharge refrigerant into an area where there is an open flame. Refrigerant exposed to an open flame produces phosgene gas which is very poisonous.



CAUTION: To avoid damage to compressor, engines **MUST** be shut off when charging high pressure side of system with refrigerant.



Connect gauge set FKM10001-6* as described under "Discharging the System".

Connect dispensing valve FKM10001-10* (A) with refrigerant container FKM10001-9* (B) and connect yellow hose.

Loosen hose connection to gauges. Open dispensing valve briefly to purge air from yellow hose. Retighten hose connection.

Open dispensing valve and high side gauge valve. Both gauges should no longer show a vacuum.

NOTE: Should reading of low pressure gauge not rise, then this signalizes a blockage in the system which must be removed.

Close high pressure valve as soon as pressure stops rising.

Run engine at 1500 rpm with system control set for maximum cooling.

Keep refrigerant container upright and open low pressure valve.

IMPORTANT: Refrigerant must not enter the compressor as this will cause internal damage.

Specified full charge: 1.8 kg (4 lb.).

NOTE: Charging the system can be accelerated by placing refrigerant container in warm water with a maximum temperature of 50°C (120°F).

* Is part of tester FKM10001

L119290-LB29006AE-010488

CHARGING THE SYSTEM (Contd.)



CAUTION: Do not exceed temperature of 50°C (120°F) as otherwise refrigerant container may explode.

Close dispensing valve after charging.

Check for full charge of air conditioning system through receiver-dryer sight glass. Add refrigerant should bubbles occur.

KLIMAANL-LA79005CE-001184

ADDING REFRIGERANT TO A PARTIALLY DISCHARGED SYSTEM

Small amounts of refrigerant may have to be added to system to replace losses from leaks or opening the system for service. In case of major leaks or oil losses (oil film), check compressor oil level before adding refrigerant.

Connect gauge set FKM10001-6* as described under "Discharging the System".

Connect the yellow hose to the refrigerant container FKM10001-9*.

Bleed all test hoses.

Run engine with system control set for maximum cooling.

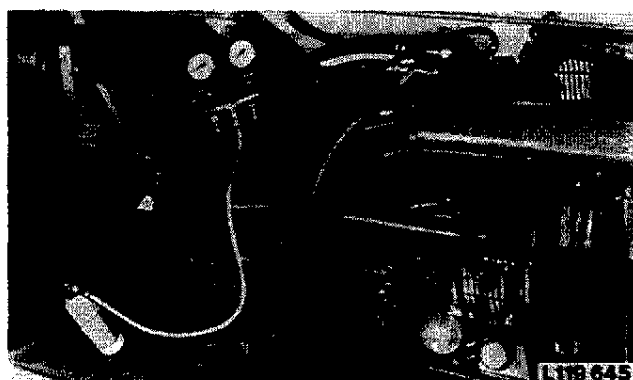
Observe receiver-dryer sight glass. Add a further 0.2 to 0.4 kg (7 to 14 oz) refrigerant to the system as soon as no more bubbles are visible.

NOTE: Charging the system can be accelerated by placing refrigerant container in warm water with a maximum temperature of 50°C (120°F).



CAUTION: Do not exceed temperature of 50°C (120°F), as otherwise the refrigerant container may explode.

* Is part of tester FKM10001



L119645-LB39006AE-010888

LEAKAGE TEST

NOTE: The leakage test confirms whether an oily spot in the system has resulted due to a leakage. Carry out leakage tests on operable systems only. If the system has already lost a part of the refrigerant charge, refrigerant must be added before the leakage test.



Connect pressure test kit FKM10001-6* to compressor and bleed test hoses.

Read static pressure shown on low pressure gauge. If pressure is less than 340 kPa (3.4 bar; 50 psi), add refrigerant.

Scan entire system with pick-up of electronic leak detector FKM10001-5* (A).

NOTE: Always scan below part being tested because R-12 refrigerant is denser than air.

NOTE: High concentrations of R-12 in the air can influence test results.

* Part of tester FKM10001

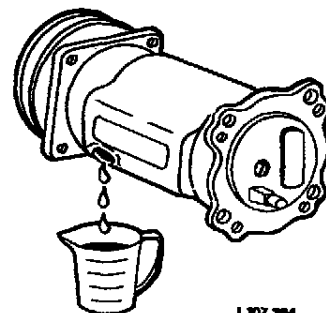
L119646-LB29006AE-010488

CHECKING OIL LEVEL IN COMPRESSOR

Drain oil while tipping compressor back and forth and rotating compressor shaft.

Measure the oil in a measurement beaker graduated in ml (fl.oz.).

Discard the oil (do not use again).



L 107 364



L107364,Z103872-LB29006AE-010488

ADDING REFRIGERANT OIL

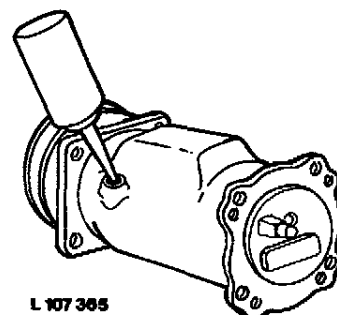
When 90 to 240 ml (3 to 8 fl. oz.) of oil has been drained, refill with 180 ml (6.0 fl.oz.) of fresh oil into the compressor.

When more than 90 to 240 ml (3 to 8 fl. oz.) of oil has been drained, refill with 180 ml (6.0 fl.oz.) of fresh oil into the compressor and replace receiver-dryer.

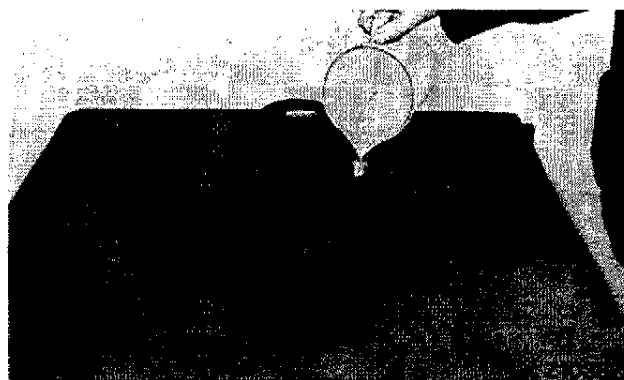
When less than 90 ml (3 fl.oz.) has been drained, flush system, replace receiver-dryer and add 330 ml (11 fl. oz.) of fresh oil into the compressor.

IMPORTANT: Whenever less than 90 ml (3 fl. oz.) has been drained from the compressor, always replace receiver-dryer.

When installing a repaired compressor which has not been filled with oil, add an extra 30 ml (1 fl.oz.) to the amount specified above.



L 107 365



L107365,Z103873-LB29006AE-010488

OIL CAPACITY IN OTHER COMPONENTS

When replacing other components of the system, remove component, drain oil and clean component. Add following amounts of oil into the compressor:

- Condenser 30 ml (1.0 fl.oz.)
- Evaporator 45 ml (1.5 fl.oz.)
- Receiver-dryer 23 ml (0.75 fl.oz.)
- Refrigerant lines 7 ml (0.25 fl.oz.)
- Compressor 180 ml (6.0 fl.oz.)

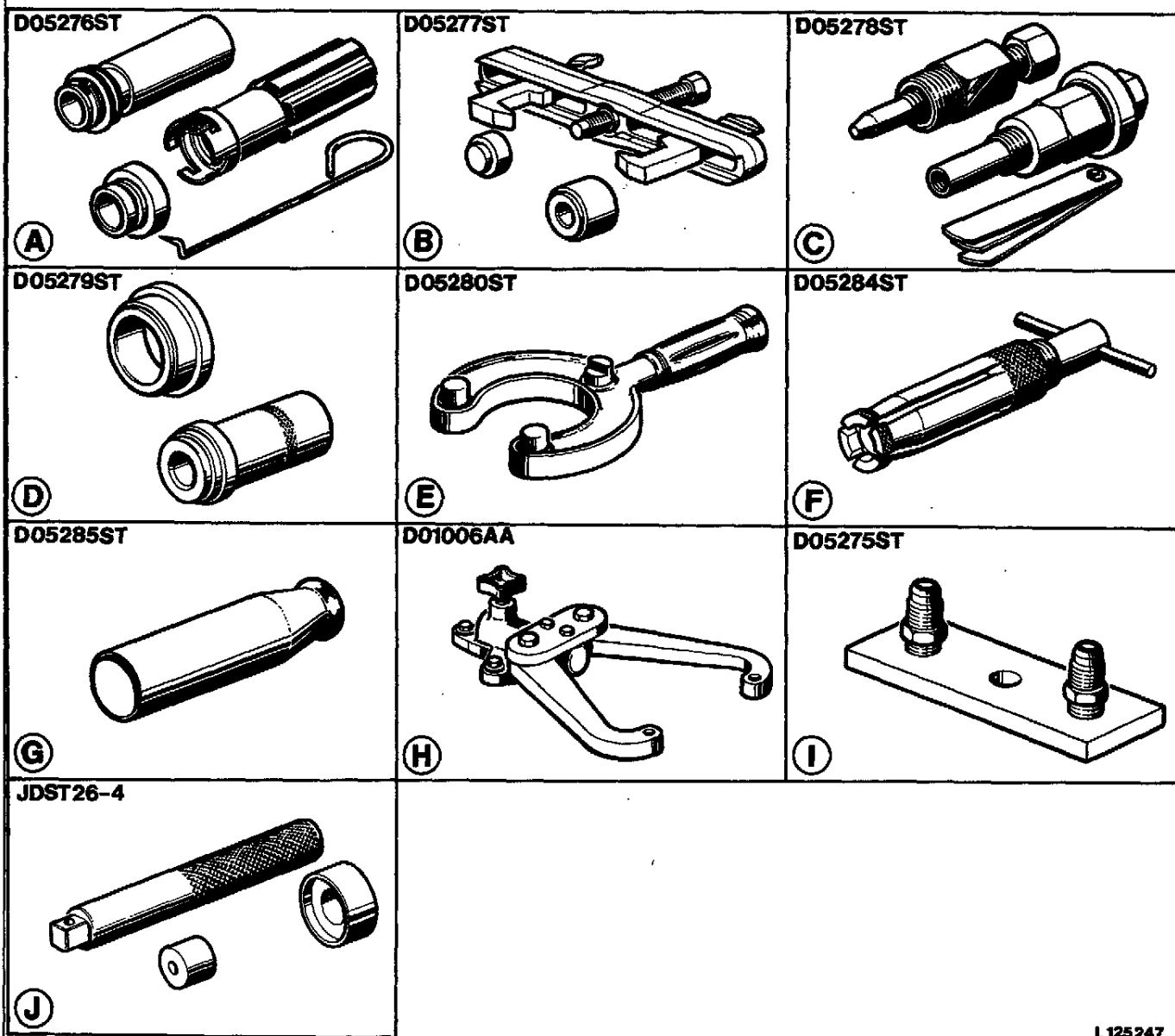
If the complete system was disassembled and all lines and components (including compressor) were individually drained of oil and flushed, the full charge of oil (330 ml; 11 fl. oz.) should be added to the compressor when system is reassembled.

WART-LB29006CE-010488

Group 07

COMPRESSOR (Up to Tractor Serial No. 646 949L)

SPECIAL TOOLS



L 125 247

NOTE: The special tools (A to G) are part of the universal air conditioning compressor tool kit D05273ST.

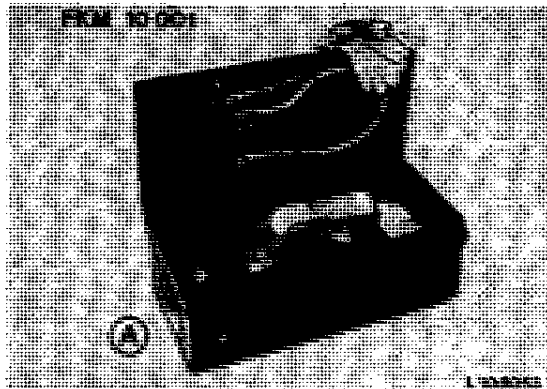
A—Removal and installation of compressor main shaft seal
B—Removal and installation of compressor V-belt pulley
C—Removal and installation of compressor clutch

D—Installing compressor V-belt pulley and bearing
E—Removal and installation of compressor lock nut
F—Removal and installation of compressor ceramic seal seat

G—Installing compressor main shaft seal
H—Clamping compressor
I—Testing compressor
J—Installing front and rear bearing shields of compressor

L125247-LB39007AE-010888

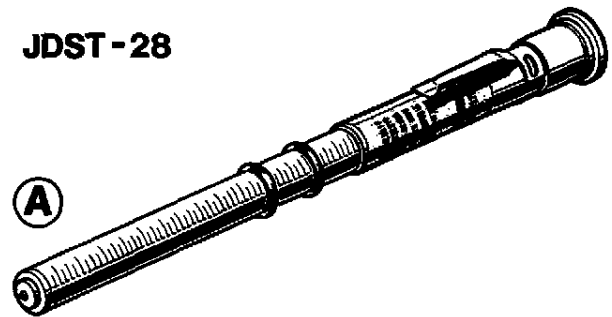
SPECIAL TOOLS (Contd.)



A—Discharging, evacuating, charging
and checking system

L108053-LA79005AE-001184

JDST - 28



A—Checking compressor V-belt tension

L 114 923

L114923-LB39005AE-000267

SPECIFICATIONS

Compressor high pressure (engine speed 2000 rpm)	1200 to 2000 kPa (12 to 20 bar; 175 to 300 psi)
Compressor suction pressure (engine speed 2000 rpm)	100 to 200 kPa (1 to 2 bar; 10 to 30 psi)
Compressor clutch solenoid coil:	
– Current draw (at 12 volts)	2.5 amps.
– Resistance at 27°C (80°F)	3 ohms
Compressor relief valve opens at	3000 kPa (30 bar; 440 psi)
Press fit of hub and drive plate assembly on compressor shaft	0.005 to 0.018 mm (0.0002 to 0.0007 in.)
Clearance between drive plate and belt pulley	0.8 mm (0.032 in.)
Main shaft end play	0.008 to 0.033 mm (0.0003 to 0.0013 in.)
Full charge of oil (new or service exchange compressor, Frigidaire oil 525 or Reniso type KM)	330 ml (11 fl.oz.)
Drive belt pulley diameter	approx. 143 mm (5-5/8 in.)
Belt tension	The belt should have 19 mm (3/4 in.) flex with 60 N (13 lb) pull.

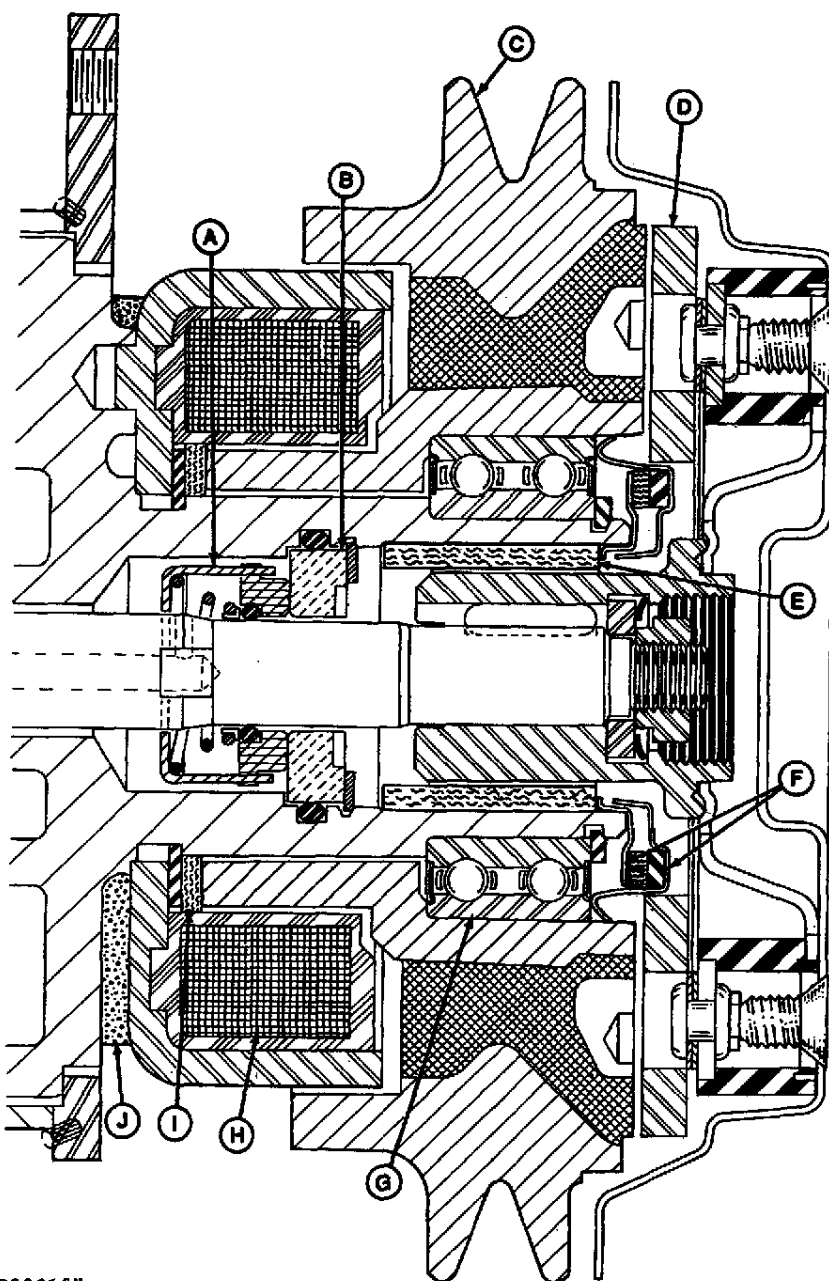
KOMP-LB29007AE-000488

TORQUES FOR HARDWARE

Hub and drive plate on compressor shaft, hex. nut	20 Nm (15 ft-lb)
Compressor valve plate, attaching cap screw	45 Nm (35 ft-lb)

KOMP-LB29007BE-000488

COMPRESSOR CLUTCH ASSEMBLY, SECTIONAL VIEW



R28610N

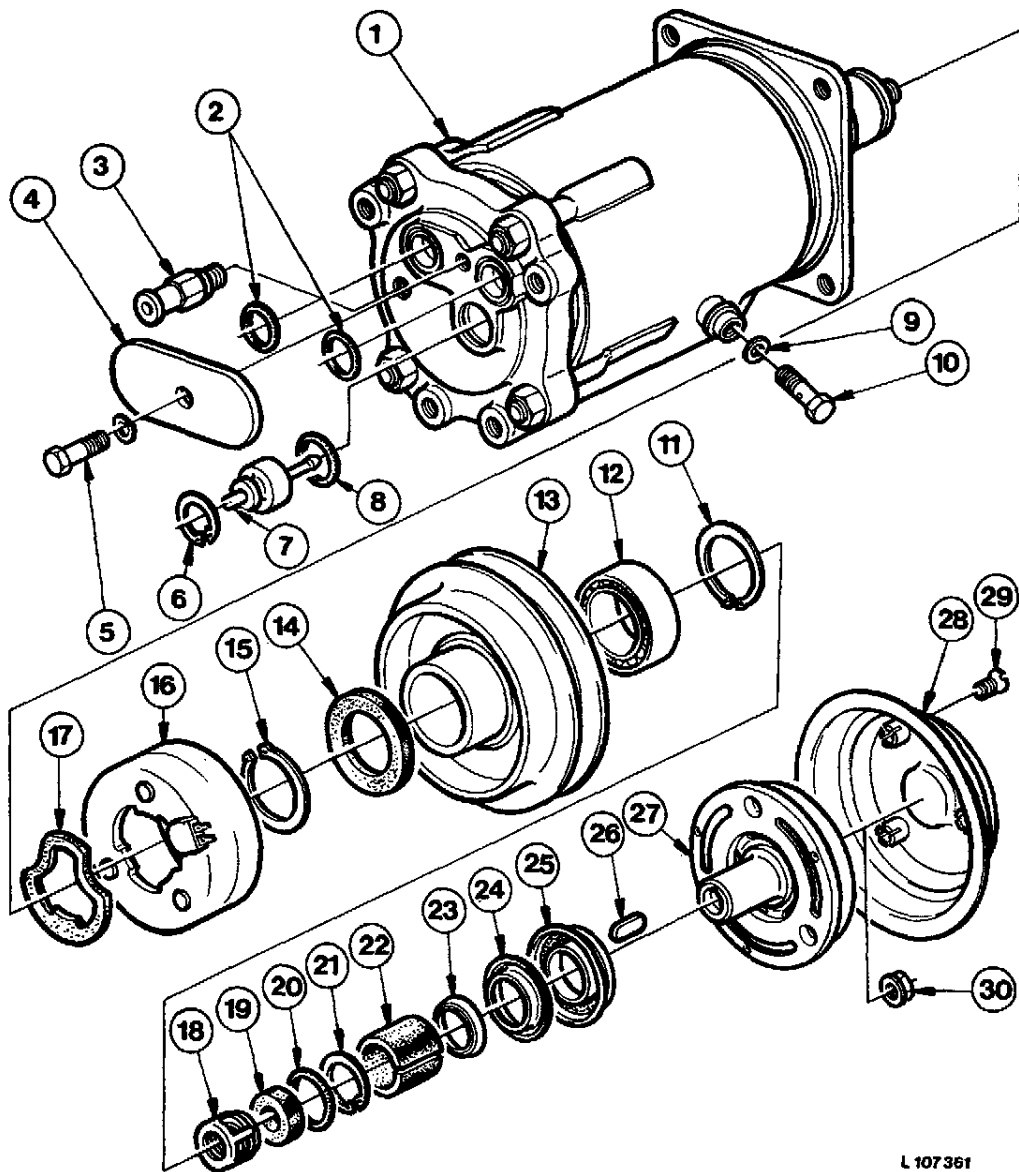
A—Main shaft seal ring
B—Seal seat
C—V-belt pulley
D—Hub and drive plate assembly

E—Felt seal
F—Pulley bearing front and rear shield

G—Pulley bearing
H—Coil and coil housing assembly
I—Felt seal
J—Rubber gasket

R28610N-LB29005AE-000886

COMPRESSOR CLUTCH ASSEMBLY, EXPLODED VIEW



- 1-Compressor
- 2-O-rings
- 3-Relief valve
- 4-Plate
- 5-Cap screw
- 6-Snap ring
- 7-Superheat switch
- 8-O-ring
- 9-Seal washer
- 10-Cap screw

- 11-Snap ring
- 12-Ball bearing
- 13-V-belt pulley
- 14-Felt seal
- 15-Snap ring
- 16-Coil and coil housing
- 17-Rubber gasket
- 18-Main shaft seal
- 19-Seal seat
- 20-O-ring

- 21-Snap ring
- 22-Felt seal
- 23-Back-up ring
- 24-Front bearing shield
- 25-Rear bearing shield
- 26-Key
- 27-Hub and drive plate
- 28-Dust cap
- 29-Countersunk screw (3 used)
- 30-Lock nut

L 107 361

L107361-LA79005AE-091184

REMOVING COMPRESSOR

If compressor is operable, operate for 10 minutes by running engine at 1900 rpm with temperature control set for maximum cooling and blower speed in high position.

Shut off engine and discharge refrigerant (refer to "Discharging the System", Group 06).

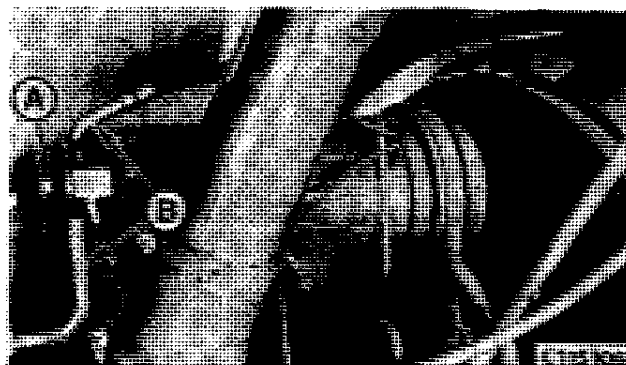
Unscrew attaching screw (A) and remove refrigerant valves (B).



CAUTION: Pressure may still exist at the discharge fitting on the high pressure side. If this pressure is released too rapidly, there may be a considerable discharge of refrigerant and oil.

NOTE: Immediately seal compressor openings with valve cover plate to prevent entry of dirt and moisture in the compressor.

Remove compressor. Drain oil and measure amount of oil drained.



L115106-LB39007AE-010888

SHAFT SEAL LEAK TEST

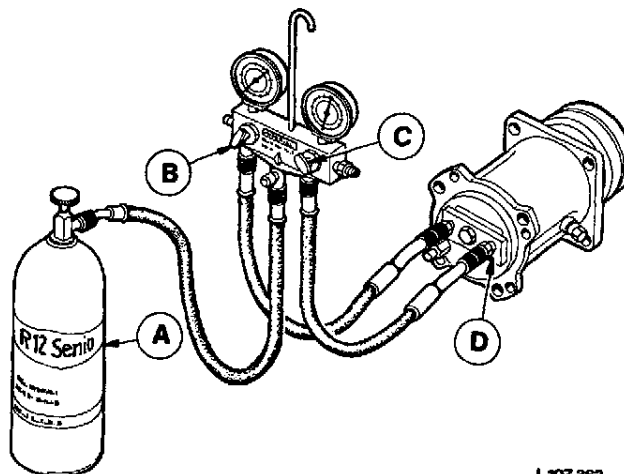
Attach compression test plate D05275ST (D), refrigerant container (A) and tester hoses to compressor.

Open high and low pressure gauge valves (B and C).

Open refrigerant container filler valve and charge compressor with refrigerant to container pressure (at least 400 kPa; 4 bar; 60 psi).

Check area of shaft seal and compressor end plate for leakage.

Before installing compressor, be sure compressor contains the specified amount of oil.



L 107 362

- A-Refrigerant container
- B-Low pressure gauge valve
- C-High pressure gauge valve
- D-Compression test plate D05275ST

L107362-LB39007AE-010888

DISCHARGE TO SUCTION SIDE LEAK TEST

Make sure that compressor contains at least 30 ml (1 fl. oz.) of oil.

Mount compressor in a vice with oil reservoir at the top.

Rotate clutch hub by hand (suction and discharge ports open). If hub does not rotate satisfactorily, replace compressor.

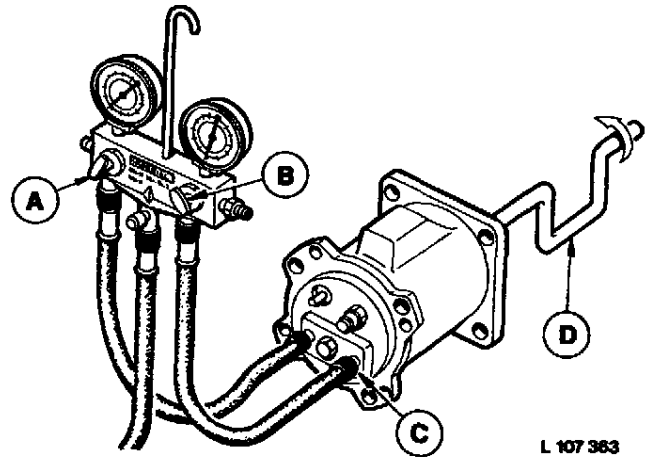
Install compression test plate D05275ST (C) and hoses of tester on the compressor.

Open high and lower pressure gauge valves and rotate compressor shaft approx. 25 times.

Close low pressure gauge valve (A) and open high pressure gauge valve (B).

Rotate clutch hub 10 times at a speed of 1 revolution/second using a socket speed brace (D) with 9/16 in. socket.

Pressure gauge should indicate a pressure of 400 kPa (4 bar; 60 psi) or more. Replace compressor if pressure is lower.



- A—Low pressure gauge valve
- B—High pressure gauge valve
- C—Compression test plate D05275ST
- D—Socket speed brace

L107363-LB39007AE-010888

REMOVING LOCK NUT

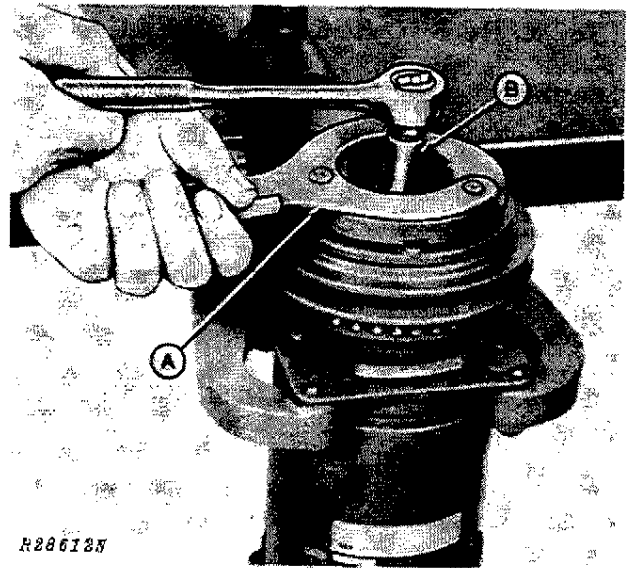
Mount compressor in bench holding fixture D01006AA.

Remove dust cover.

Remove lock nut.

A—Clutch holding wrench D05280ST*
B—9/16 in. socket

* Part of kit D05273ST



R28612N-LB39007AE-010688

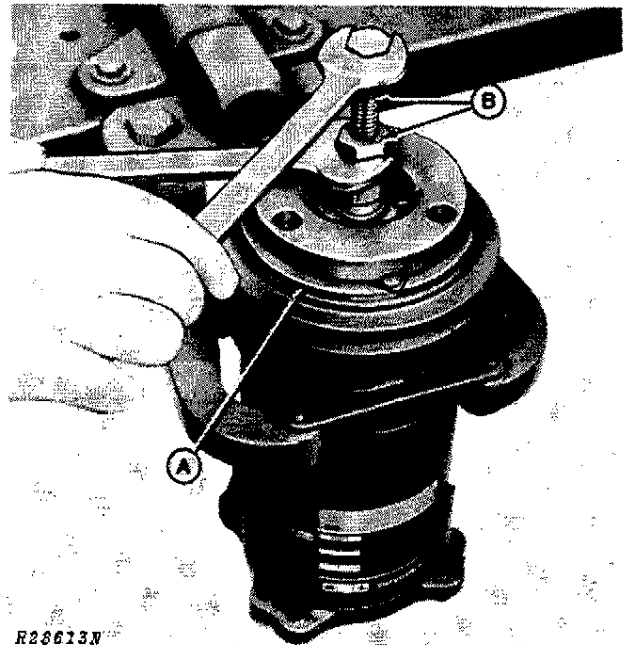
REMOVING HUB AND DRIVE PLATE

Remove snap ring and spacer.

Remove the hub and drive plate (A) using hub puller DRF-AC454* (B).

* Part of tool kit D05278ST**

** Part of tool kit D05273ST



R28613N-LB39007AE-010688

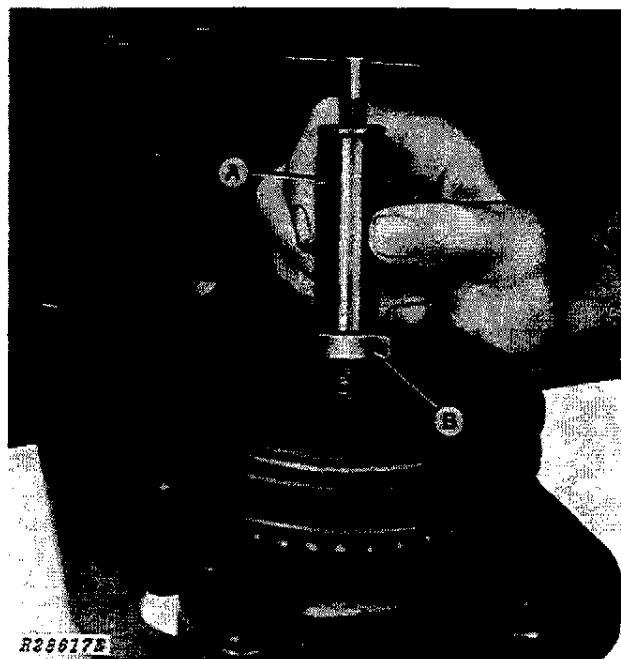
REMOVING SHAFT SEAL SEAT

Remove front and rear bearing shields.

Remove snap ring.

Remove shaft seal seat (B) using removal tool D05284ST* (A).

* Part of tool kit D05273ST



R28617N-LB39007AE-010888

REMOVING SHAFT SEAL ASSEMBLY

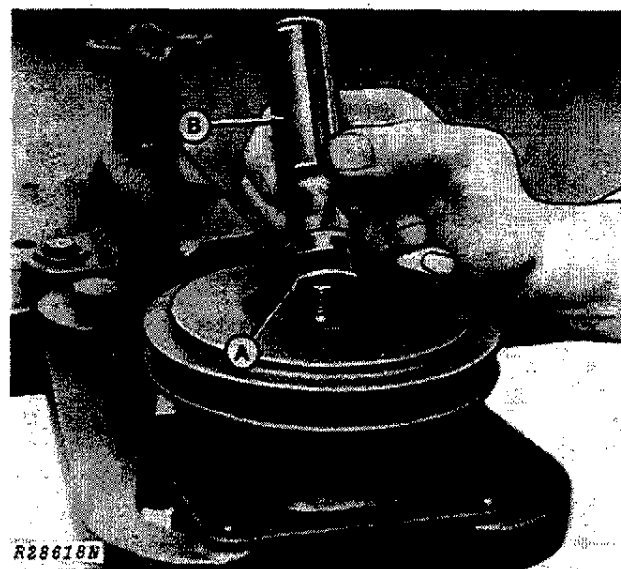
Depress special tool DRF-AC415* (B) and briefly turn in clockwise direction until seal ring engages with tool.

Pull seal assembly (A) from shaft.

Remove O-ring using removal tool DRF-AC412*.

* Part of tool kit D05276ST**

** Part of tool kit D05273ST



R28618N-LB39007AE-010888

REMOVING V-BELT PULLEY WITH BEARING

Remove snap ring.

Remove V-belt pulley and bearing, using tool kit D05277ST*.

Remove bearing from pulley, using tool kit D05279ST*.

IMPORTANT: If bearing is to be replaced, be sure to use a John Deere bearing. This bearing has a special seal to keep out dust and dirt.

Remove felt seal.

* Part of tool kit D05273ST



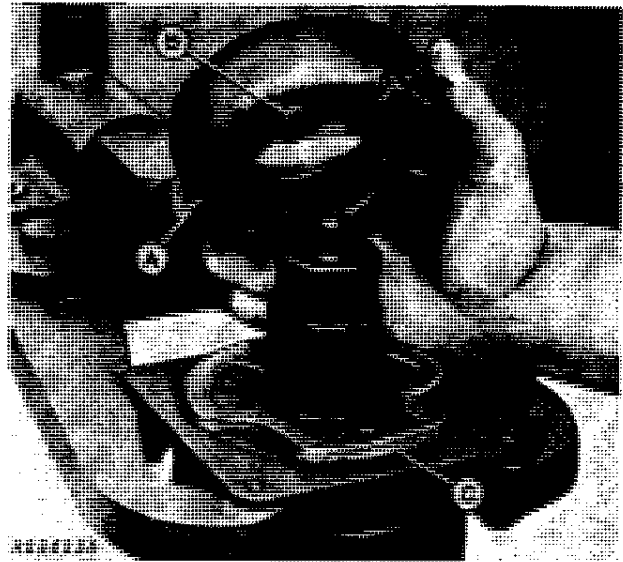
R25119N-L639007AE-010888

REMOVING COIL HOUSING

Remove snap ring.

NOTE: Mark position of the wiring terminals on coil housing (A) in relation to compressor body to ensure correct reinstallation.

A—Coil housing
B—Dowel
C—Rubber gasket



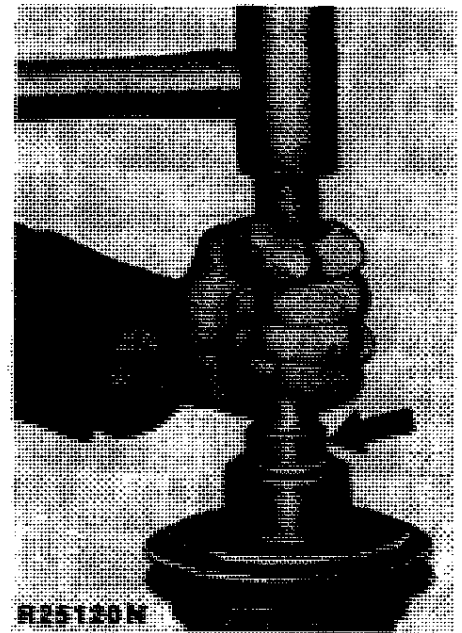
R28623N-LA79005AE-091184

INSTALLING V-BELT PULLEY WITH BEARING

Drive V-belt pulley with bearing onto shoulder of compressor using tool kit D05279ST*.

Install snap ring.

* Part of tool kit D05273ST



R25120N-LB39007AE-010888

INSTALLING O-RING FOR SEAL RING SEAT

Coat O-ring (A) of seal ring seat with compressor oil and install on shaft of special tool JDG-334* between both washers (B).

Insert special tool and push down firmly with sharp, short movements until O-ring is seated in groove.

* Part of tool kit D05276ST**

** Part of tool kit D05273ST



R25113N-LB39007AE-010888

INSTALLING SHAFT SEAL RING ASSEMBLY

Place seal protector D05285ST** (C) over end of compressor shaft.

Install seal ring using special tool DRF-AC415* (B).

Install new ceramic seal ring seat (A) using special tool D05284ST**.

Insert snap ring into compressor bore and press completely into groove using special tool DRF-AC460*.

NOTE: Check compressor for leaks before installing remaining parts (see "Shaft Seal Leak Test").

* Part of tool kit D05276ST**

** Part of tool kit D05273ST



R28619N-LB39007AE-010888

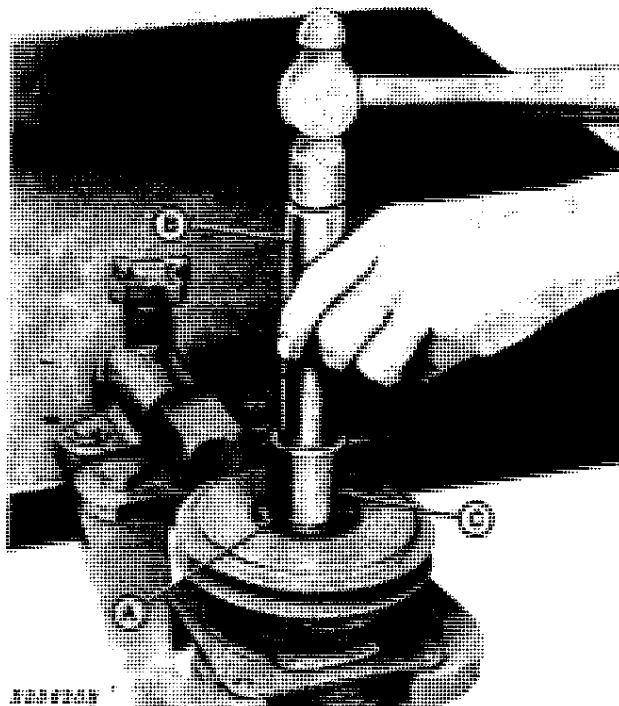
INSTALLING REAR BEARING SHIELD

Insert new felt seal.

Using installation tool JDST26-4B* (C) and driver (B), drive rear bearing shield (A) in until it bottoms on outer end of neck.

NOTE: The outer face of the rear shield which contacts the front shield has a teflon coating. Therefore, no lubricant of any kind should be used on this surface.

* Part of tool kit JDST26-4

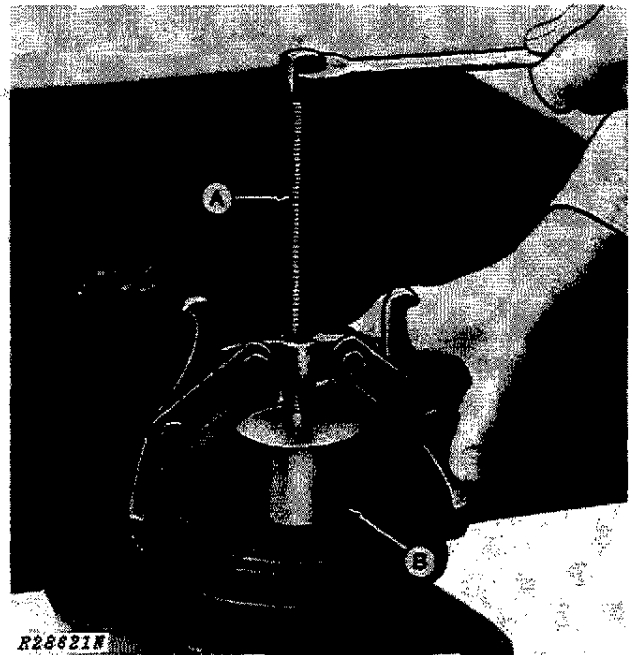


R28620N-LB39007AE-010888

INSTALLING FRONT BEARING SHIELD

**Press in new front bearing shield using installation tool JDST26-4A* (B) and a conventional jaw-type pul-
 ler (A) until it bottoms against bearing.**

* Part of tool kit JDST26-4

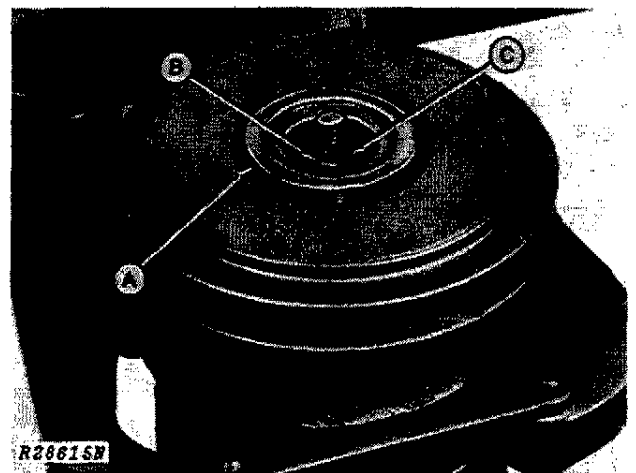


R28621N-LE39007AE-010888

POSITIONING DRIVE KEY

Position key (C) so that it will protrude 5 mm (3/16 in.) from shoulder of compressor shaft (B) when installed.

A—Front bearing shield
B—Compressor shaft
C—Key



R28615N-LA79005AE-001184

INSTALLING HUB AND DRIVE PLATE

Screw installation tool DRF-AC458A* (A) into threaded end of compressor shaft approx. three full turns.

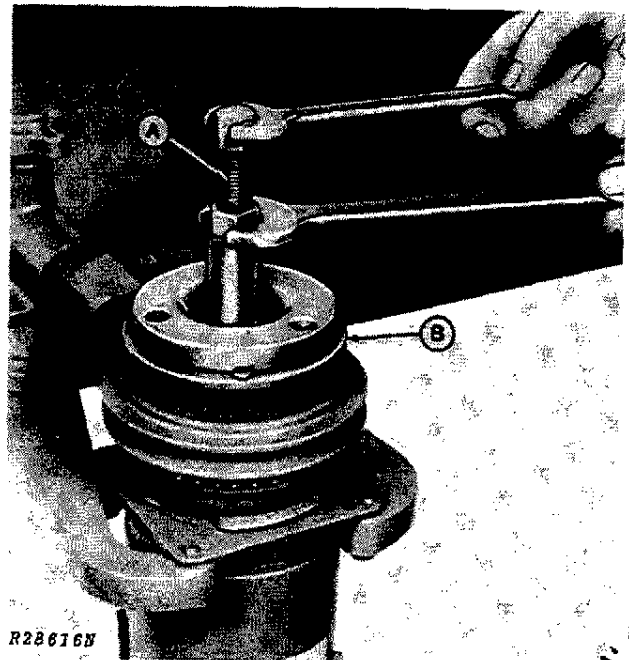
Press hub and drive plate (B) onto compressor shaft until there is 0.8 mm (0.032 in.) clearance between drive plate and pulley. Check clearance using 0.8 mm (0.032 in.) feeler gauge DRF-AC423*.

Tighten lock nut to a torque of 20 Nm (15 ft-lb). Use D05280ST** clutch holding wrench to prevent the clutch from turning while tightening nut.

Recheck clearance between drive plate and pulley.

* Part of tool kit D05278ST**

** Part of tool kit D05273ST



R28616N-LB39007AE-010888

INSTALLING COMPRESSOR

Before installing compressor, be sure it contains the specified amount of oil.

NOTE: Before installing compressor, rotate compressor shaft four or five times. This guarantees complete lubrication of compressor seal sealing surface. Clean any oil deposits from outer surface of compressor to prevent any oil entering the magnetic clutch.



Install compressor.



CAUTION: New compressors are charged with a mixture of nitrogen, refrigerant R-12 and 330 ml (11 fl.oz.) of refrigerant oil (viscosity 525). If cover plate is removed too quickly, a considerable amount of oil will be blown out with refrigerant because of sudden release of pressure.

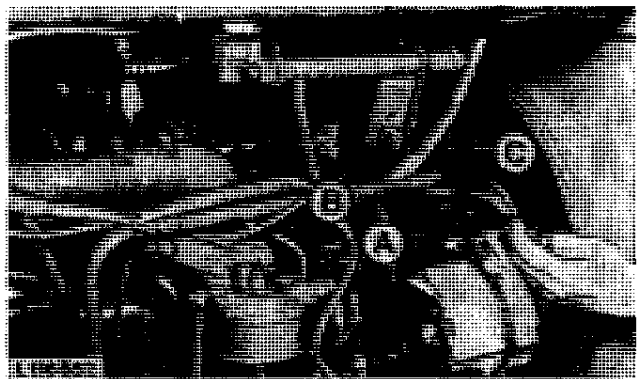
Coat manifold O-rings with compressor oil and install refrigerant valves (B) on compressor. Tighten valve cover plate attaching screw (A) to 45 Nm (35 ft-lb).

L115106-LB39007AE-010888

TENSIONING COMPRESSOR V-BELT

Using belt tension gauge JDST-28 (A), check tension of V-belt.

Tension V-belt (C) by means of tensioner screw (B) until belt flexes 19 mm (3/4 in.) with 60 N (13 lb) pull in the center between crankshaft and compressor.



L116652-LB39005AE-010287

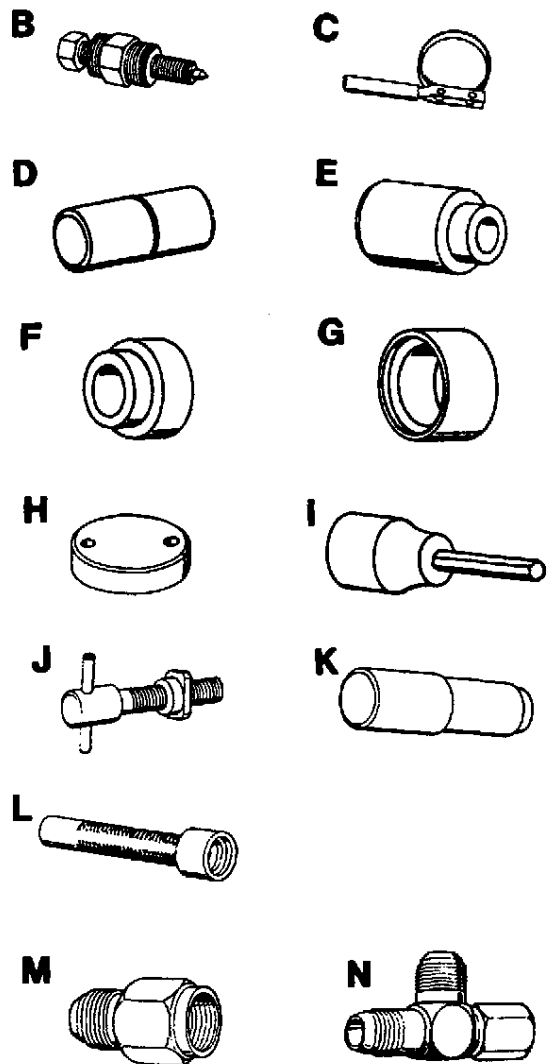
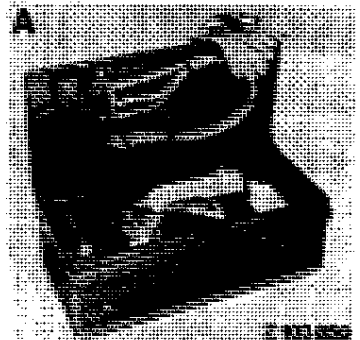
Group 08

COMPRESSOR (From Tractor Serial No. 646 950L)

SPECIAL TOOLS

- A - FKM-10001 - Gauge set for testing air conditioning system
- B - JDG216 - Puller for compressor clutch
- C - JDG217 - Holding strap for compressor clutch
- D - JDG219 - Socket wrench
- E - JDG220 - Thrust piece
- F - JDG221 - Thrust piece
- G - JDG223 - Support ring
- H - JDG225 - Support plate
- I - JDG226 - Hex. socket wrench
- J - JDG227 - Puller, valve plate
- K - JDG228 - Driver
- L - JDG229 - Driver
- M - JT03182 - Coupler (tool kit JT05419)
- N - JT03195 - T-fitting (tool kit JT05419)

NOTE: Tools (B to L) are part of tool kit JDG215.



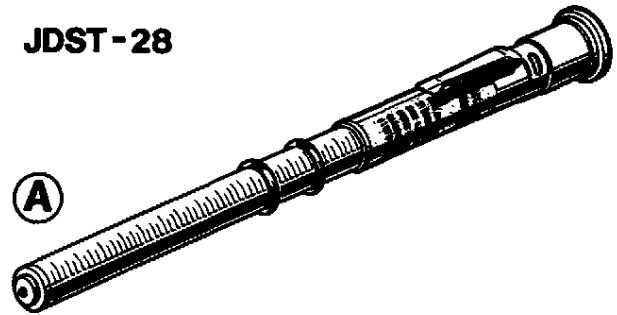
Z103851

Z103850, Z103851-Z119625AE-000286

SPECIAL TOOLS (Contd.)

JDST - 28

A—Checking compressor V-belt tension



L 114 923

L114923-LB39008AE-010888

SPECIFICATIONS

Clearance between clutch halves	0.53 to 0.91 mm (0.021 to 0.036 in.)
Full charge of oil (new or service exchange compressor. Frigidaire oil 525 or Reniso type KM)	330 ml (11 fl.oz.)
Compressor high pressure (engine speed 2000 rpm)	700 to 2000 kPa (7 to 20 bar; 100 to 300 psi)
Compressor suction pressure (engine speed 2000 rpm)	7 to 240 kPa (0.07 to 2.4 bar; 1 to 35 psi)
Compressor clutch solenoid coil:	
– Current draw (at 12 volts)	2.8 to 3.5 amps.
– Resistance at 20°C (68°F)	2.8 to 4.5 ohms
Compressor relief valve opens at	3000 kPa (30 bar; 440 psi)
Belt tension	The belt should have 19 mm (3/4 in.) flex with 60 N (13 lb) pull.

KOMP-LB29008AE-000488

TORQUES FOR HARDWARE

Compressor suction line	45 Nm (33 ft-lb)
Compressor pressure line	35 Nm (25 ft-lb)
Valve plate, cap screws	25 Nm (18 ft-lb)
Hub to compressor shaft, hex.nut	15 Nm (11 ft-lb)

KOMP-LB29008BE-010488

REMOVING COMPRESSOR

If the compressor is operable, run engine for 10 minutes at 1900 rpm with controls set for maximum cooling and fan speed.

Shut off engine and discharge refrigerant from system as instructed under "Discharging the System".

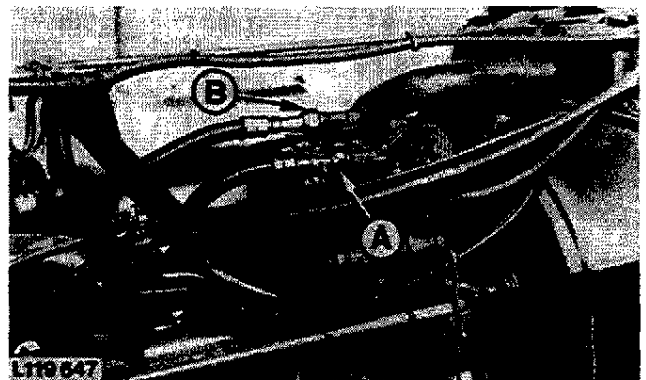
Disconnect pressure and suction hoses (A and B) at compressor.



CAUTION: Pressure may still exist at the discharge fitting on the high pressure side. If this pressure is released too rapidly, there may be a considerable discharge of refrigerant and oil.

NOTE: Cover compressor openings immediately with caps to prevent entry of dirt or moisture into the compressor.

Remove compressor. Drain refrigerant oil from compressor and measure amount drained.

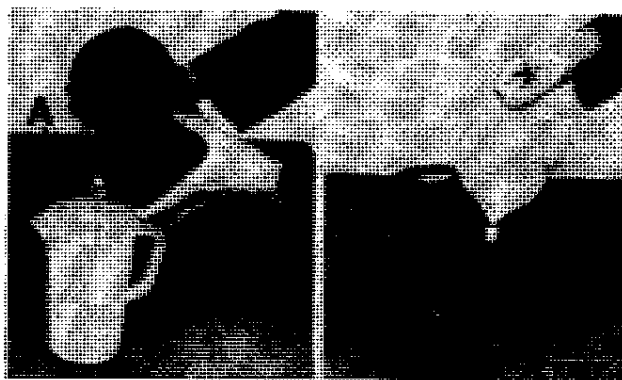


L119647-LB39008AE-010888

CHECKING COMPRESSOR CHARGE

Compressor Oil Charge

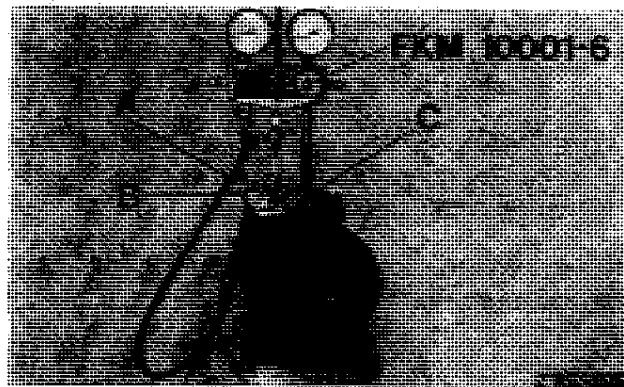
1. Drain compressor oil from suction port (A).
2. On a compressor, which has not been disassembled previously, fill with 120 to 150 ml (4 to 5 fl.oz.) of refrigerant oil.
On a compressor, which has been disassembled previously, fill with 150 to 180 ml (5 to 6 fl.oz.) of refrigerant oil.
Fill with refrigerant oil through suction port (A).
3. Tip compressor vertically to front and rear, then slowly roll compressor for 30 seconds.



Z103853-Z129015AE-001084

Connecting Manifold Gauge Set to Compressor

1. Clamp compressor as shown. Remove dust cap from drive pulley.
2. Remove valve caps from suction and discharge ports and install adapter JT03195 (C) and adapter JT03182 (B).
3. Connect low side hose (A) (blue) of manifold gauge kit to high side connection of compressor. Suction port of the compressor remains open. Open the low pressure valve of gauge set.

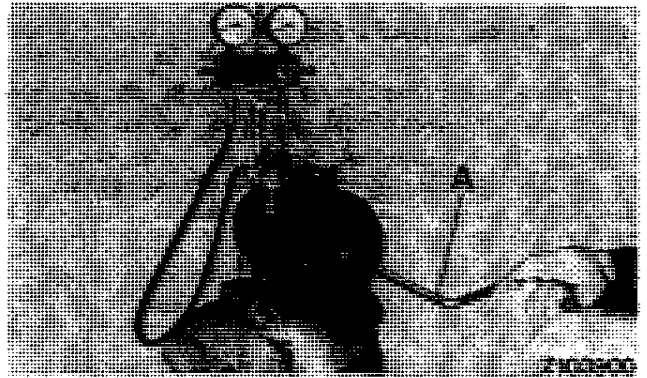


NOTE: The low pressure gauge is connected to the high side for better pressure readings.

Z103899-Z139005AE-001085

Internal Leak Testing

1. Use crank (A) with a 12 mm socket insert to rotate compressor rapidly five revolutions.
2. Close low pressure gauge of gauge set. Use crank to turn compressor shaft exactly 20 revolutions in 20 seconds and read pressure on gauge.
3. If pressure reading is equal to or greater than 370 kPa (3.7 bar; 55 psi), compressor is in order. Then check shaft oil seal.
4. If pressure reading is less than 370 kPa (3.7 bar; 55 psi), disassemble compressor and check the following parts:
 - Front and rear head O-rings
 - Suction valve
 - Valve plates
 - Cylinder walls for scoring



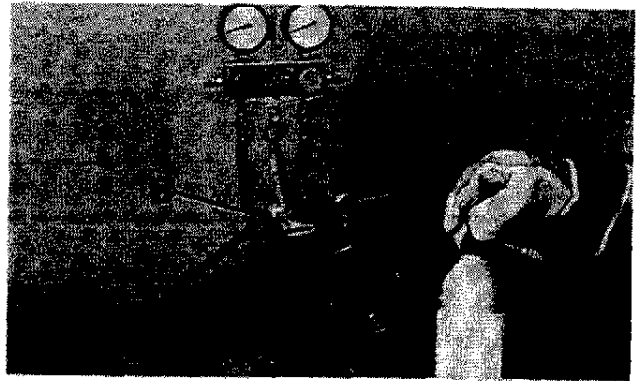
Z103900-Z139005AE-001085

CHECKING SHAFT SEAL

1. Connect high pressure gauge to high pressure side (B). Connect low pressure gauge to suction side (C).
2. Connect yellow center hose (A) with refrigerant container.
3. Open both test gauge valves. Open valve of refrigerant container and charge compressor.
4. Check shaft oil seal with leak tester. If leakage is indicated, replace shaft oil seal and O-rings of front and rear heads.
5. Close valves of gauge set and refrigerant container. Disconnect hose (A) from refrigerant container. Open both valves of test gauges and discharge refrigerant from compressor.



CAUTION: When handling refrigerant, always wear safety glasses and leather gloves, otherwise serious personal injury may result, since refrigerant has a low boiling point of -30°C (-22°F). If refrigerant strikes the eyes, freezing of the eyeball can lead to blindness.

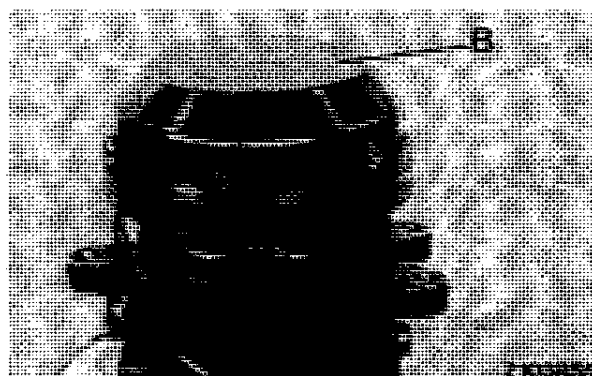


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DISASSEMBLING COMPRESSOR

Removing Dust Cap

Remove six attaching screws (A) and lift off dust cap (B).

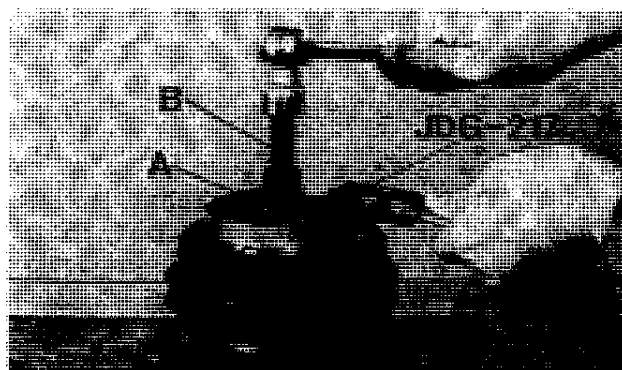


Z103856-Z129015AE-001084

Removing Clutch Hub

1. Hold drive belt pulley with holding strap JDG217 and remove hex. nut from shaft.

2. Screw part (A) of puller JDG216 into belt pulley. Use screw (B) of puller JDG216 to force clutch hub out of pulley.



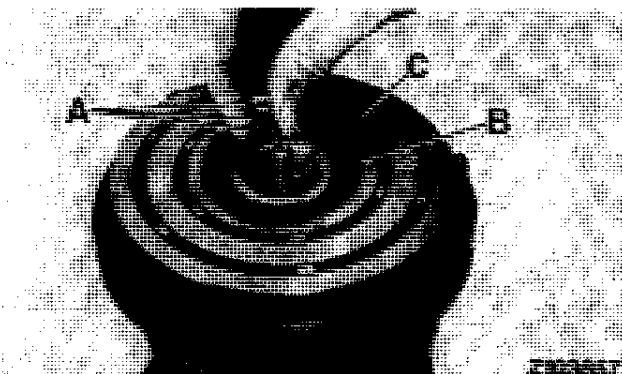
Z103856-Z129015AE-001084

Removing Drive Plate

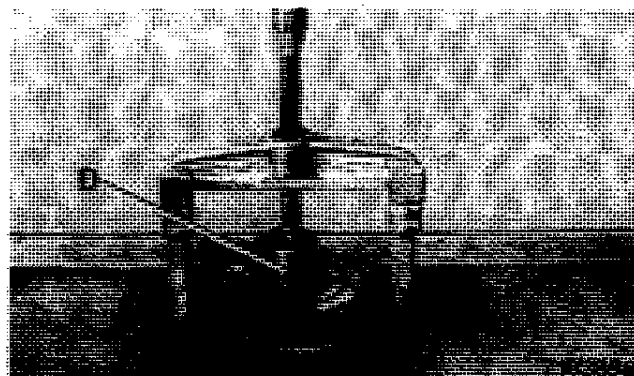
1. Remove spacers (A) and note number of spacers used for assembly.

2. Remove snap ring (B) and key (C).

3. Pull off drive plate, using thrust piece JDG220 (D) and puller.



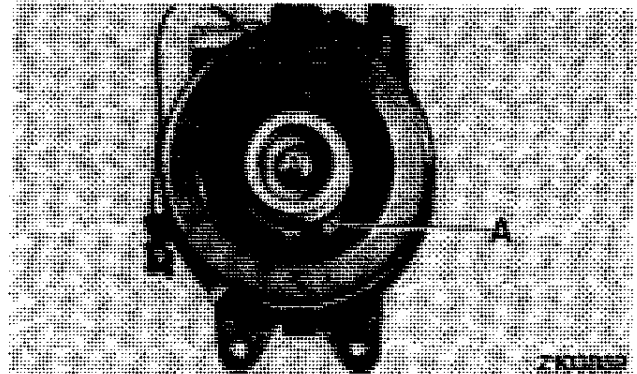
A-Spacer
B-Snap ring
C-Drive key
D-Thrust piece JDG220



Z103857,Z103859-Z129015AE-001084

Removing Clutch Coil

Remove snap ring (A). Disconnect coil wiring lead and remove clutch coil.

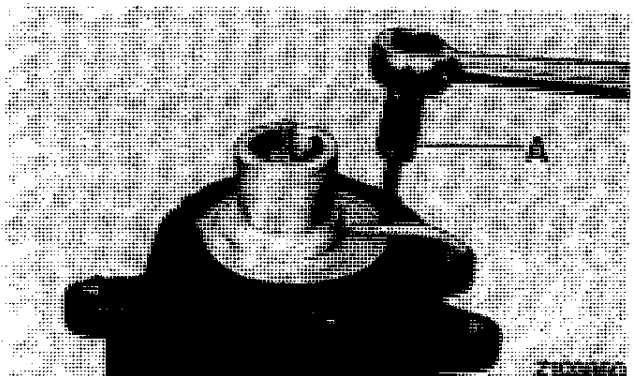


Z103859-Z129015AE-001084

Removing Valve Plate

1. Remove six anchor bolts with socket insert (A) JDG226.

IMPORTANT: Only remove anchor bolts with suction and pressure valves properly installed, otherwise compressor housing may fall apart.

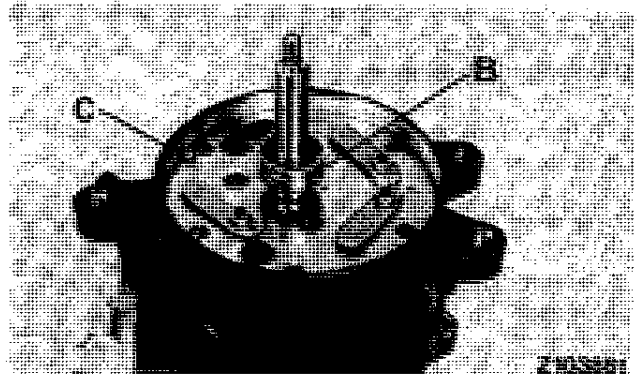


2. Lift valve plate with cover from compressor.

3. Pull shaft oil seal (B) from compressor shaft.

4. Remove dowel (C).

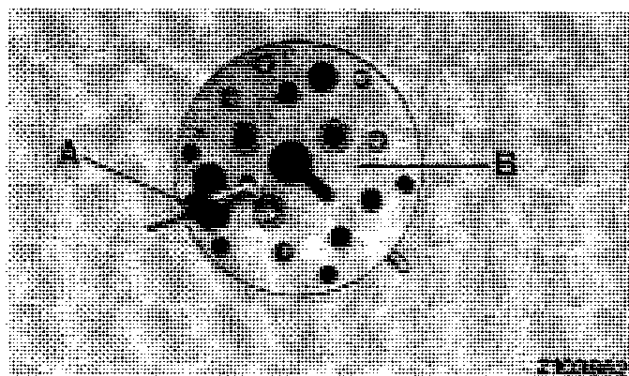
5. Pull valve plates out of compressor housing.



Z103860,Z103861-Z129015AE-001084

Disassembling Valve Plate

After removal of valve plate (B) and shaft oil seal with cover, pull off valve plate (B) by means of puller JDG227 (A).

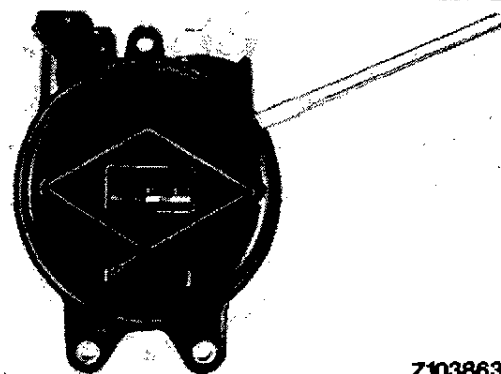


Z103862-Z129015AE-001084

Removing Rear Valve Plate

1. Carefully remove cover from compressor housing.
2. Pull out valve plate assembly and disassemble, using puller JDG227.

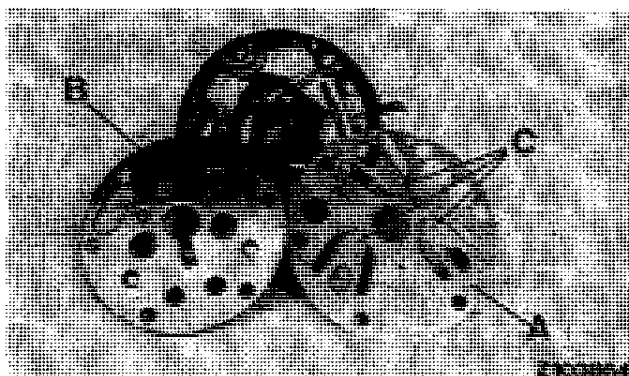
NOTE: Rear and front valve plates are identical.



Z103863-Z129015AE-001084

REPAIRING VALVE PLATES

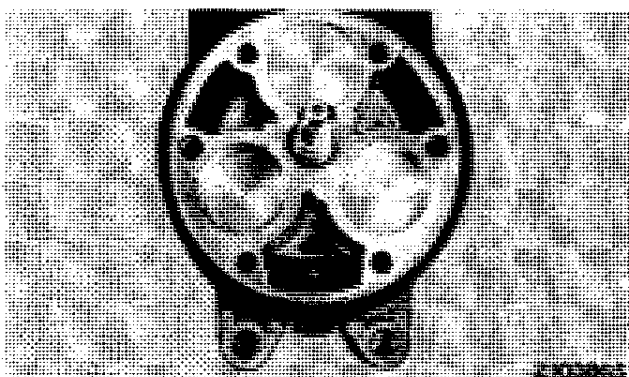
Check valve plates (A and B) for damage and wear. Closely check reed area (C) for wear and replace plates, if necessary.



Z103864-Z129015AE-001084

REPAIRING CYLINDER AND PISTON

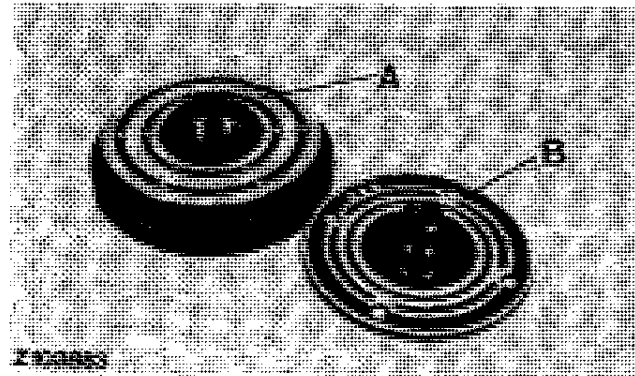
Check cylinder walls for scoring and excessive wear and replace complete compressor, if necessary.



Z103865-Z129015AE-001084

REPAIRING ELECTROMAGNETIC CLUTCH COMPONENTS

Check surfaces of drive pulley (A) and hub (B) for wear; replace, if necessary.

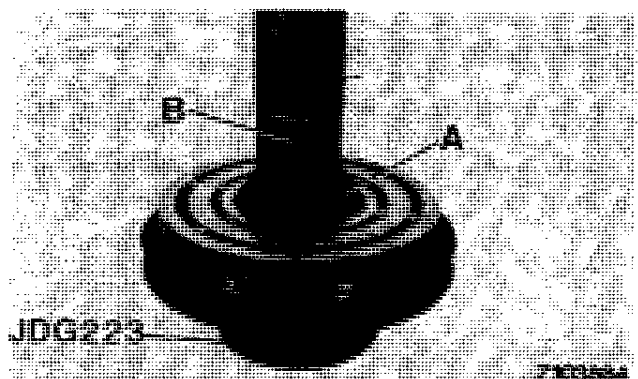


Z103883-Z129015AE-001084

CHECKING DRIVE PULLEY BEARING

Check pulley bearing for rough running or blue discoloration. Replace damaged bearing as follows:

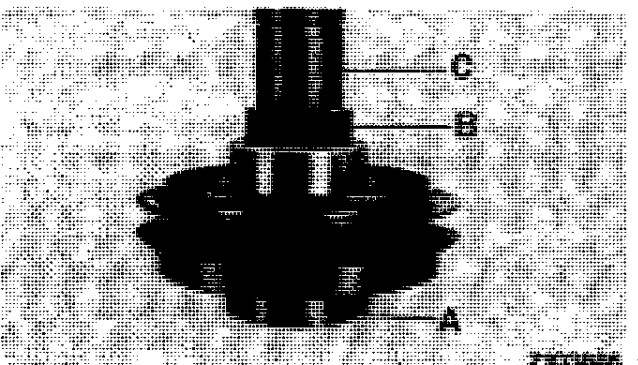
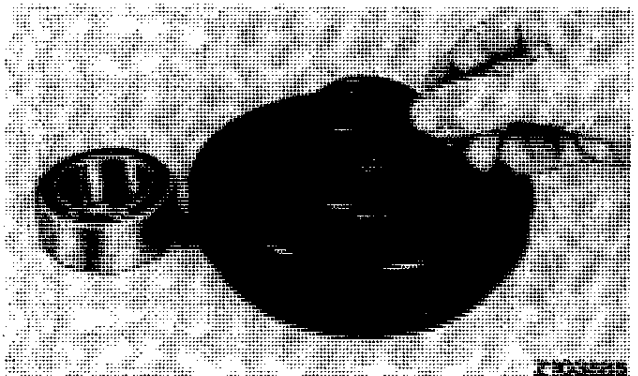
1. Remove snap ring.
2. Press out bearing using drivers JDG221 (A) and JDG220 (B), together with support JDG223.



Z103884-Z129015AE-001084

INSTALLING DRIVE PULLEY BEARING

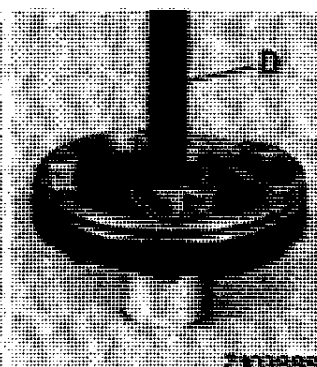
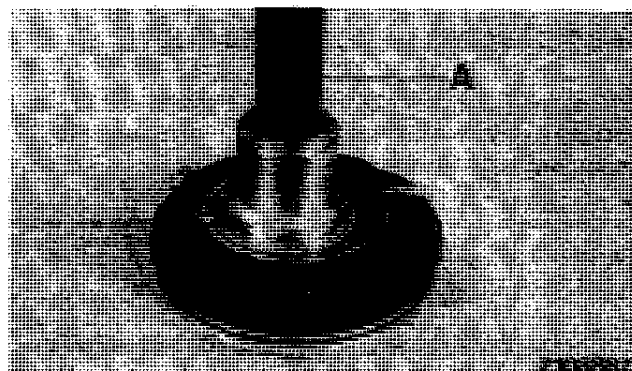
1. Insert new dust seal into drive pulley with lip facing upwards.
2. Place pulley on support JDG225 (A) and press bearing into pulley using drivers (B) JDG221 and JDG220 (C). Take care that dust seal is seated properly against tool before pressing.
3. Install snap ring.



Z103885, Z103886-Z129015AE-001084

REPLACING SHAFT SEAL SEAT

1. Remove seal seat using driver JDG228 (A).
2. Coat new O-ring (C) of seal seat (B) with clean refrigerant oil.
3. Insert seal seat (B) with groove facing upwards.
4. Press seal seat into bore using driver JDG229 (D).



Z103887, Z103888, Z129015AE-001084

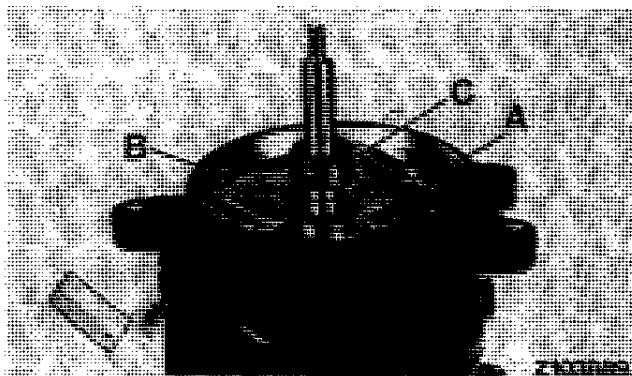
ASSEMBLING COMPRESSOR

Installing Valve Plate

1. Properly locate valve plate (A) in compressor housing. Install dowel (B) to hold valve plate in proper position.
2. Slide shaft seal (C) over shaft.
3. Assemble front and rear covers, making sure that dowel (B) remains in proper position. Tighten attaching screws to 25 Nm (18 ft-lb).
4. Insert key (E) using tool JDG219 (D).

A - Valve plate
B - Dowel pin
C - Shaft seal

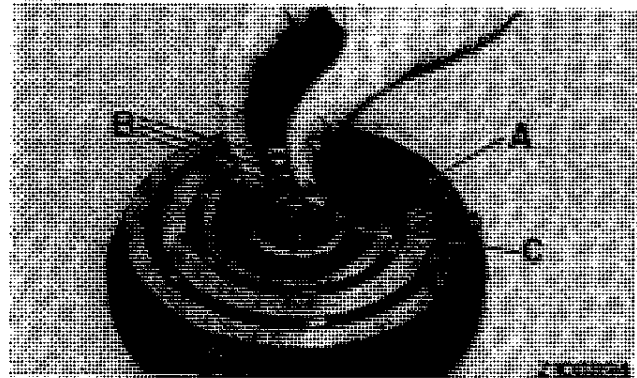
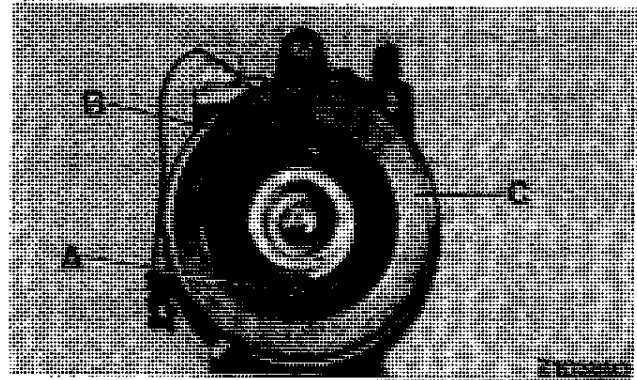
D - Tool JDG219
E - Key



Z103889, Z103892-1B29008AE-010488

ASSEMBLING ELECTROMAGNETIC CLUTCH

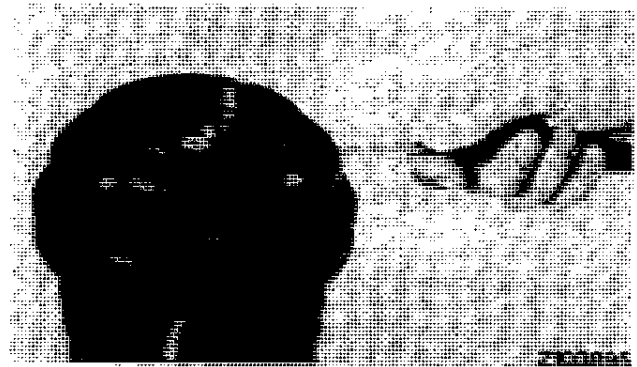
1. Install clutch coil (C), making sure that coil (C) locates in dowel (B). Install snap ring (A) with the rounded side facing upwards.
2. Install clutch plate (A) on compressor and secure with snap ring (C). Rounded side of snap ring (C) must face upwards.
3. Install same number of spacers (B) as removed during disassembly.
4. Install clutch hub and secure with nut.



Z103893, Z103894, Z129015AE-001084

CLEARANCE BETWEEN CLUTCH HALVES

1. Measure clearance between clutch hub and plate at three points with a feeler gauge.
2. Rotate clutch plate one half revolution and again measure clearance at three points.
3. Correct clearance should be between 0.53 to 0.91 mm (0.021 to 0.036 in.). Correct clearance with spacers.
4. Tighten clutch hub nut to 15 Nm (11 ft-lb).



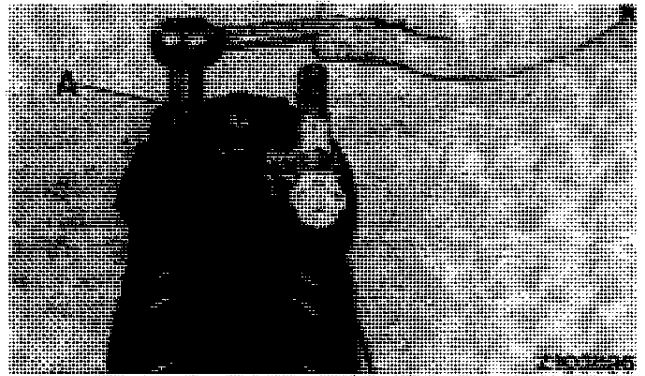
Z103895-LB29008AE-010488

REPAIRING CONNECTING FLANGE

1. Use socket JDG226 (A) to remove attaching screws.

IMPORTANT: Only remove connecting flange, if anchor bolts of compressor are firmly tightened.

2. Check sealing surfaces and O-ring of flange and replace, if necessary.



Z103896, Z103897, Z129015AE-001084

INSTALLING COMPRESSOR

Before installing compressor, make sure it contains the specified amount of oil.

NOTE: Before installing compressor, rotate compressor shaft four or five turns. This ensures proper lubrication of compressor seal over its entire sealing surface. Clean compressor exterior surface of any oil to prevent any oil getting onto electro/magnetic clutch.



Install compressor.



CAUTION: Newly manufactured compressors kept in stock are filled with a mixture of nitrogen, refrigerant R-12 and 330 ml (11 fl. oz.) of refrigerant oil (viscosity 525). When connector caps are removed this leads to a considerable loss of refrigerant oil together with refrigerant in the compressor due to the sudden drop in pressure.

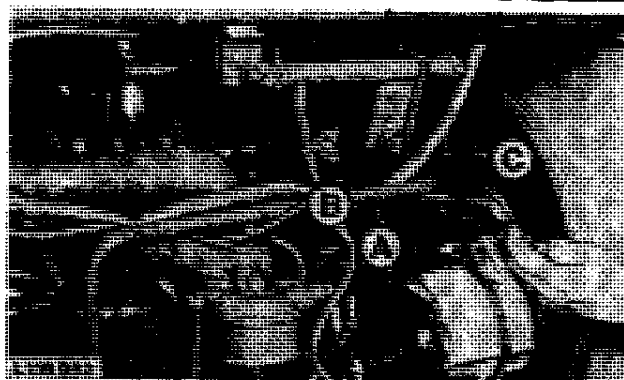
Coat O-rings of lines (A and B) with refrigerant oil. Tighten pressure line (A) to 35 Nm (25 ft-lb) and suction line (B) to 45 Nm (33 ft-lb).

L119647-LB29008AE-010488

TENSIONING COMPRESSOR DRIVE V-BELT

Using belt tension gauge JDST-28 (A), check tension of V-belt.

Tension V-belt (C) by means of tensioner screw (B) until belt flexes 19 mm (3/4 in.) with 60 N (13 lb) pull in the center between crankshaft and compressor.



L116652-LB39005AE-010287

Group 09 AIR CONDITIONING SYSTEM COMPONENTS

TORQUES FOR HARDWARE

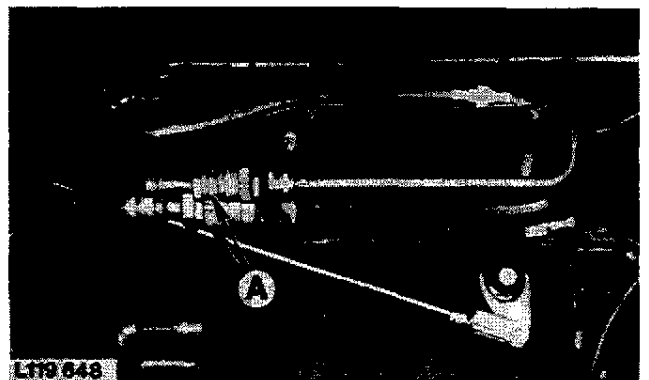
High pressure or low pressure switch to refrigerant
(from Tractor Serial No. 646 950L) 14 Nm (10 ft-lb)

KOMP-LB29009AE-000488

DISCONNECTING REFRIGERANT LINES

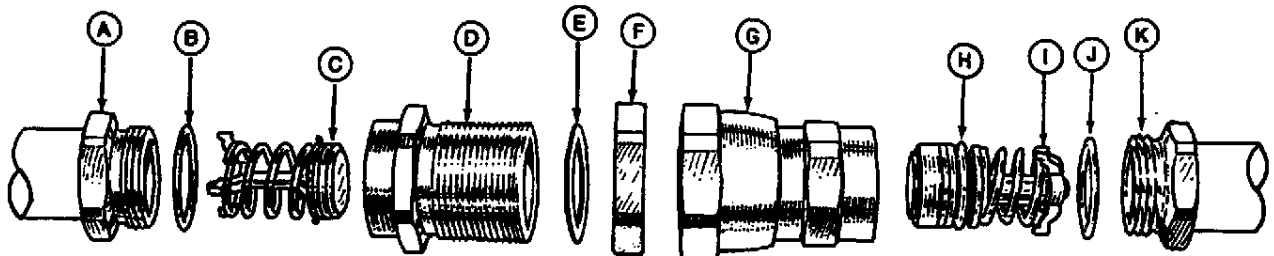
The disconnecting points are located under left-hand side of cab.

NOTE: No refrigerant is lost when disconnecting couplers (A).



L119648-LB29009AE-010488

REFRIGERANT LINE COUPLING, EXPLODED VIEW



R 31785

A-Tubing adaptor
B-O-ring
C-Poppet valve assembly
D-Body (with external thread)

E-Seal ring
F-Lock nut
G-Union nut and body assembly
(with internal thread)

H-O-ring
I-Valve assembly
J-O-ring
K-Tubing adaptor

NOTE: Use new O-rings coated with refrigerant oil when assembling a coupling.

R31785-LB29009AE-010488

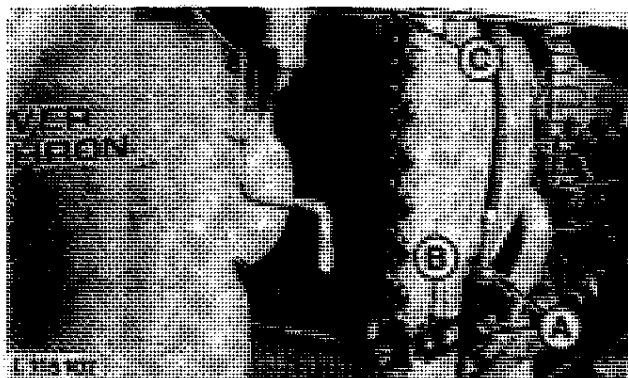
REMOVING AND INSTALLING CONDENSER

Discharge air conditioning system.

Remove cap screw (B) and both cap screws on right-hand side (see C).

Pull out condenser and disconnect refrigerant lines (A). Collect oil.

NOTE: If condenser has been repaired or replaced, pour same quantity of oil into condenser as drained.



Evacuate system and charge with refrigerant. Check system for proper operation.

L115107-LB29005AE-010886

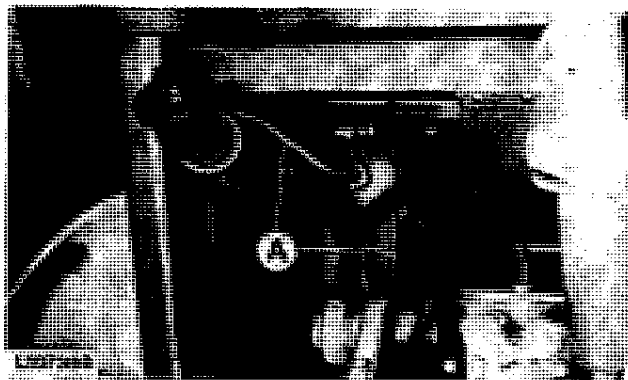
REMOVING AND INSTALLING RECEIVER-DRYER

Discharge air conditioning system.

Disconnect refrigerant lines (A) and remove receiver-dryer.

IMPORTANT: As soon as receiver-dryer compound has reached its saturation point, receiver-dryer must be replaced to prevent moisture from contaminating the system. Always install a new receiver-dryer whenever system is opened up for service, or whenever compressor shaft seal leaks. Be sure to keep new receiver-dryer capped until ready for installation. Install receiver-dryer last.

Evacuate system and charge with refrigerant. Check system for proper operation.



L107368-LA79005AE-091184

REMOVING AND INSTALLING EVAPORATOR AND EXPANSION VALVE

Discharge air conditioning system. Partially drain cooling system. Remove expansion valve (B).

IMPORTANT: Tube (A) connecting bulb to expansion valve contains a lower pressure gas. To avoid improper valve action, do not kink or pinch tube or dent bulb.

Disconnect heating hoses and refrigerant lines from radiator and evaporator (C). Collect oil.

NOTE: If condenser has been repaired or replaced, pour same quantity of oil into condenser as drained.

Insulate expansion valve (B) with insulating material R57003.

Evacuate system and charge with refrigerant. Check system for proper operation.



L107369-LA79005AE-001184

REMOVING AND INSTALLING THERMOSTATIC SWITCH

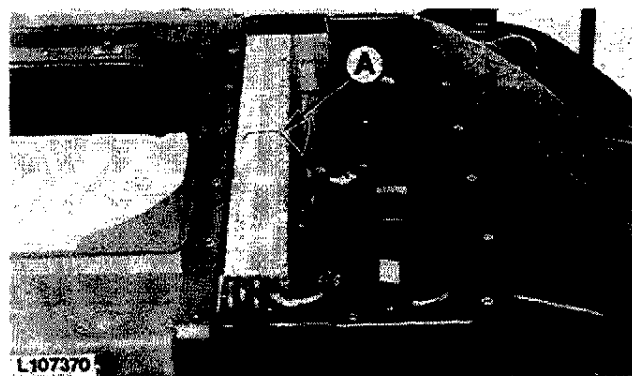
Disconnect battery ground straps.

Remove cab roof and cover of radiator and evaporator housing.

Remove capillary tube from evaporator core and then remove thermostatic switch.

IMPORTANT: Under no circumstances should capillary tube be kinked or pinched. If necessary to reshape tube to fit into core, avoid making too sharp a bend.

NOTE: Install capillary tube (A) in same location as before removal. In case of doubt, place capillary tube between first and second refrigerant tube in center of evaporator core.



L107370-LA79005AE-091184

REMOVING AND INSTALLING COMPRESSOR RELIEF VALVE

Discharge air conditioning system.

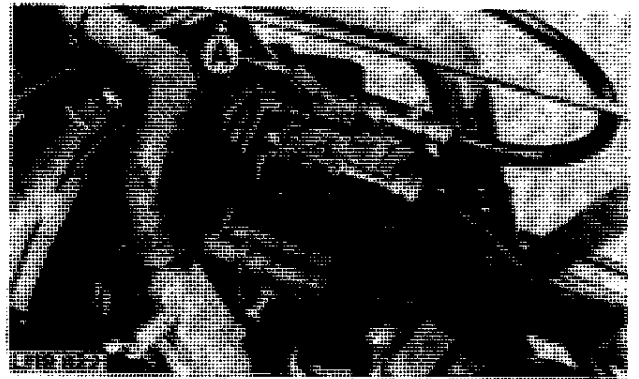
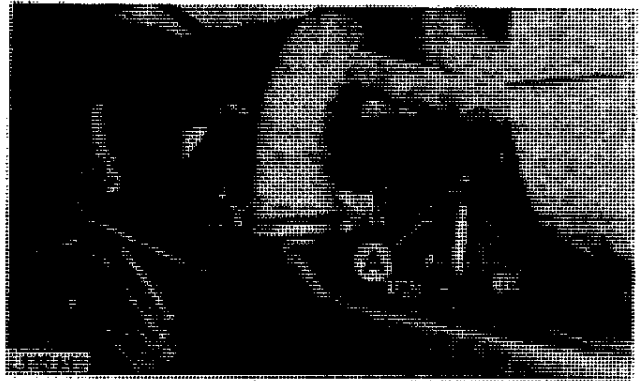


CAUTION: Discharge valve on high pressure side may still be pressurized. Abrupt release of this pressure may cause large oil and refrigerant losses.

Carefully remove relief valve (A) from compressor because there may still be high pressure in compressor.

Relief valve must be replaced as a complete assembly if it no longer operates properly or is damaged.

Evacuate system and charge with refrigerant. Check system for proper operation.



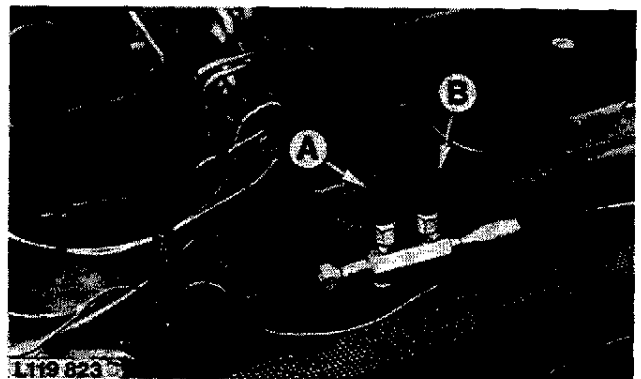
L115141, L119822-LB29009AE-010488

REMOVING AND INSTALLING HIGH AND LOW PRESSURE SWITCHES (From Tractor Serial No. 646 950L)

It is not necessary to discharge the system when replacing the high or low pressure switch (A and B).

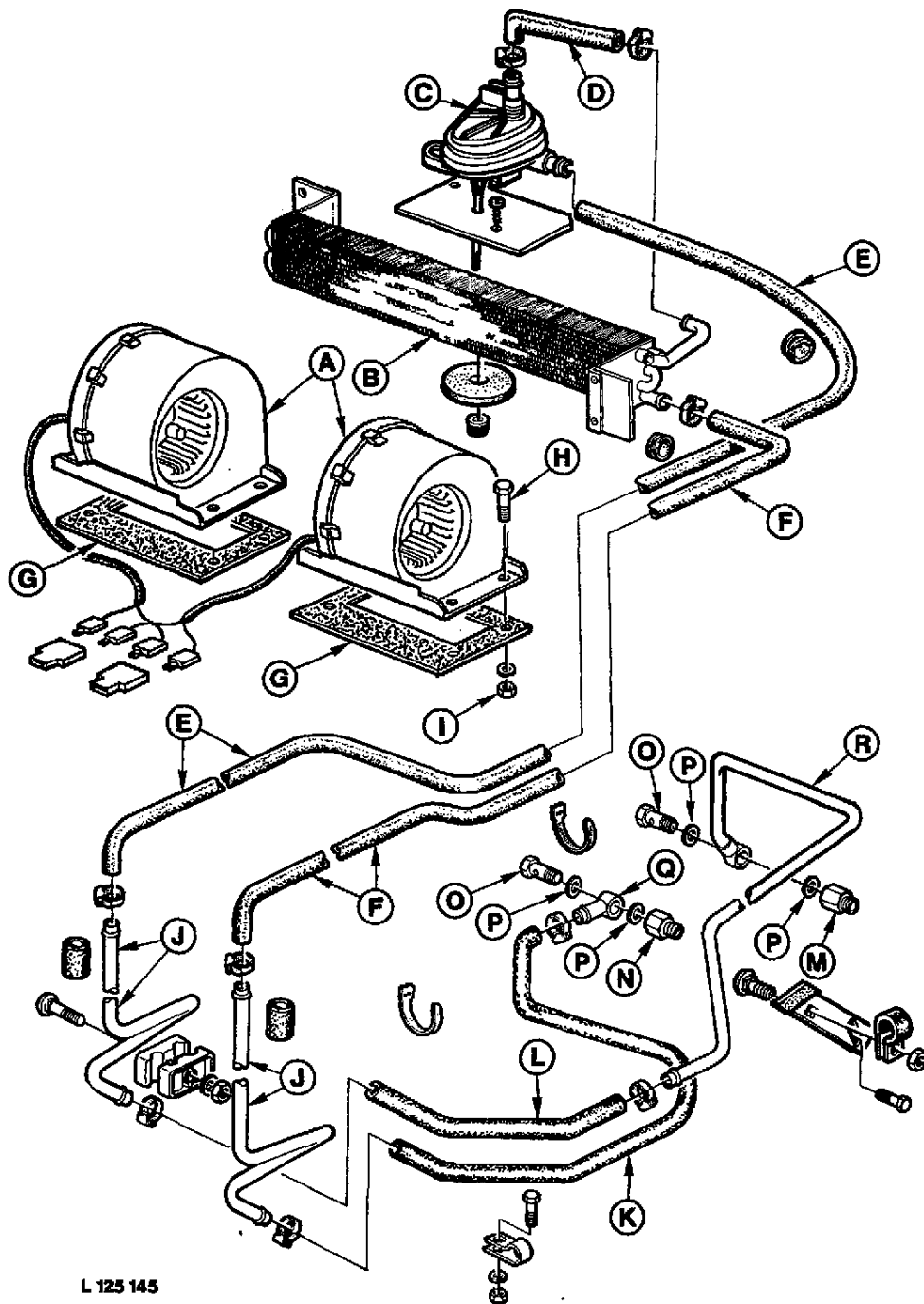
The line connectors are equipped with a check valve.

Tighten new switch to 14 Nm (10 ft-lb).



L119823-LB29009AE-010488

CAB VENTILATION AND HEATING, EXPLODED VIEW



L 125 145

A—Fan assembly
B—Radiator
C—Heater regulator
D—Hot water hose
E—Hot water hose (return flow)
F—Hot water hose (inlet flow)

G—Gasket
H—Cap screw (6 used)
I—Hex. nut (6 used)
J—Hot water pipes
K—Hot water hose (inlet flow)
L—Hot water hose (return flow)

M—Connector
N—Connector
O—Hollow screw
P—Seal rings
Q—Hose connector
R—Hot water line (return flow)

L125145-LB39010AE-010888

REMOVING FAN ASSEMBLY AND RADIATOR

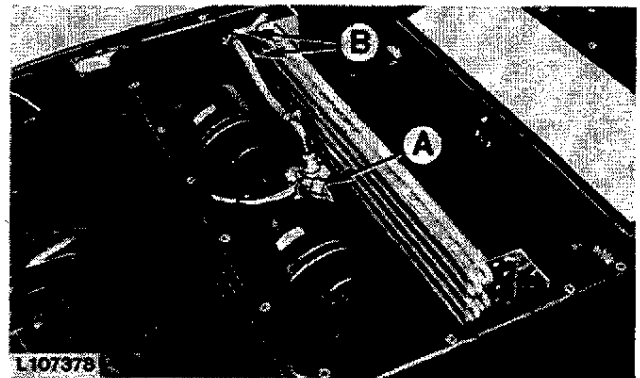
Remove cab roof and cover of radiator and evaporator housing.

Disconnect cable plug (A) of fan motors.

Remove fan assembly.

Drain cooling system.

Disconnect hot water hoses (B) and pull out radiator.



L107378-LA79010AE-091184

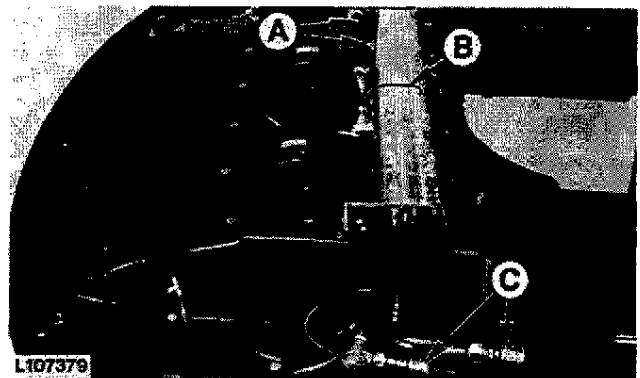
REMOVING RADIATOR (Tractors With Air Conditioning System)

Discharge air conditioning system (see Group 05).

Partially drain cooling system.

Disconnect hot water hoses (A) and refrigerant lines (C) from radiator or evaporator:

NOTE: When installing a new radiator with evaporator, place capillary tube of thermostatic switch between first and second refrigerant tube in center of evaporator.



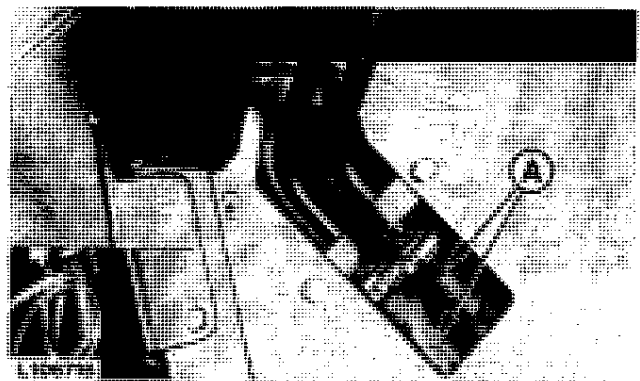
L107379-LA79010AE-091184

REMOVING HOT WATER HOSES

Disconnecting Point – Cab

If installed, remove line guard.

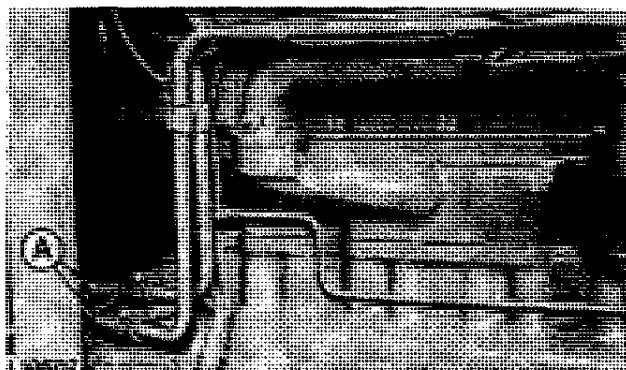
Disconnect hot water hoses (A).



L106716-LB39010AE-010287

Disconnecting Point – Engine

Disconnect hot water hoses (A).

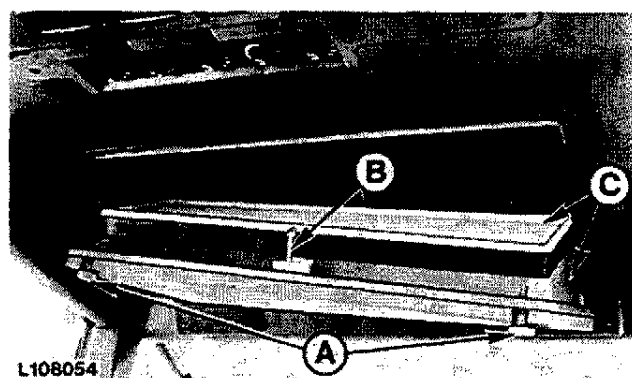


L106717-LA79010AE-091184

REMOVING AIR FILTER

On Cabs Without Roof Hatch

Unscrew attaching screws (A) and open cover. Press latch (B) to rear and remove cover with filter (C) from cab roof.



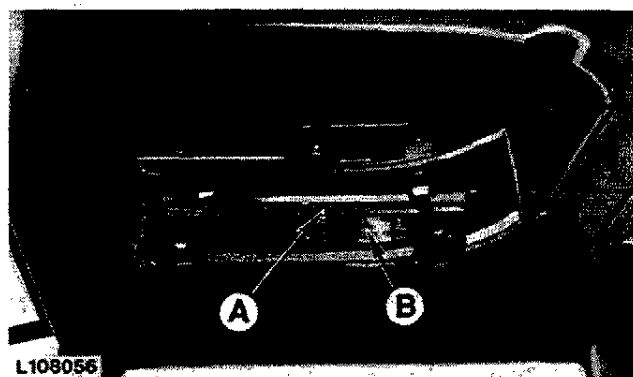
L108054

L108054-LA79010AE-091184

On Cabs With Roof Hatch

Remove attaching screws and lift off cover.

Unscrew hook screw (A) and lift out filter (B) from cab roof.



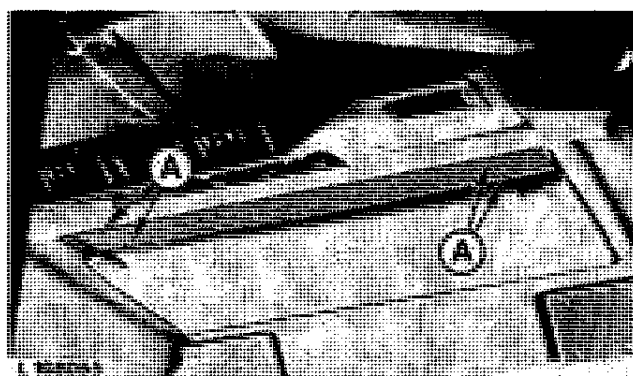
L108056

L108056-LA79010AE-091184

REMOVING AIR CIRCULATION FILTER

On Cabs Without Roof Hatch

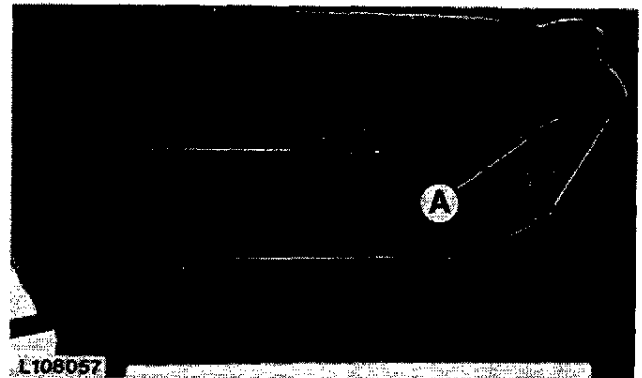
Remove Phillips screws (A) and lift out frame with foam pad filter from cab roof.



L108055-LA79010AE-091184

Cabs With Roof Hatch

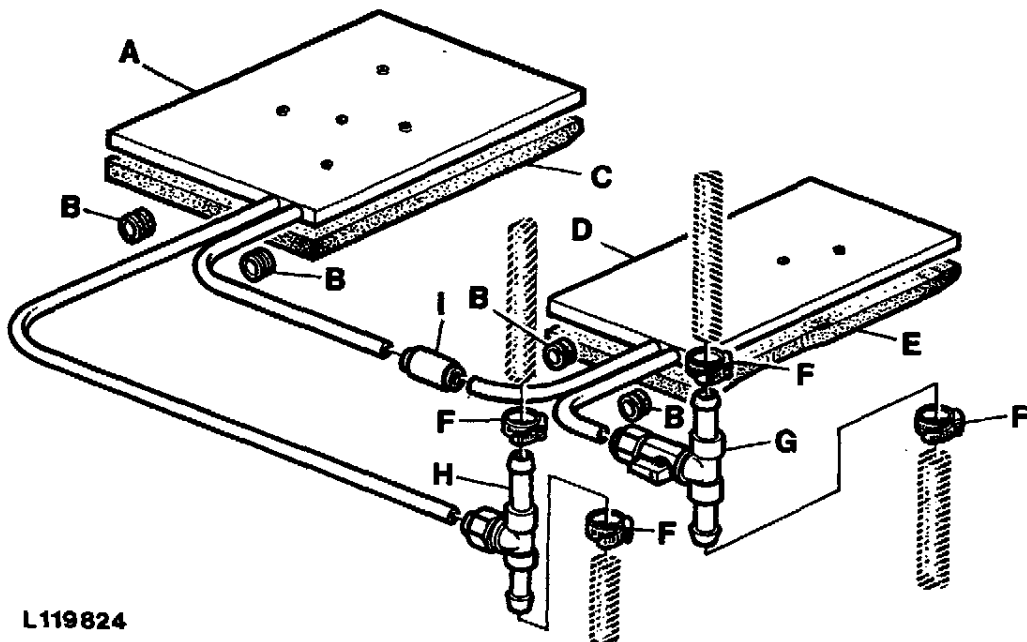
Remove air circulation filter (A) complete from cab roof.



L108057

L108057-LA79010AE-091184

CAB PLATFORM HEATING, EXPLODED VIEW



L119824

A—Heat exchanger, left-hand
B—Rubber grommet
C—Insulator, left-hand

D—Heat exchanger, right-hand
E—Insulator, right-hand
F—Hose clamp

G—T-piece with shut-off valve
H—T-piece
I—Connector

L119824-LB29010AE-010488

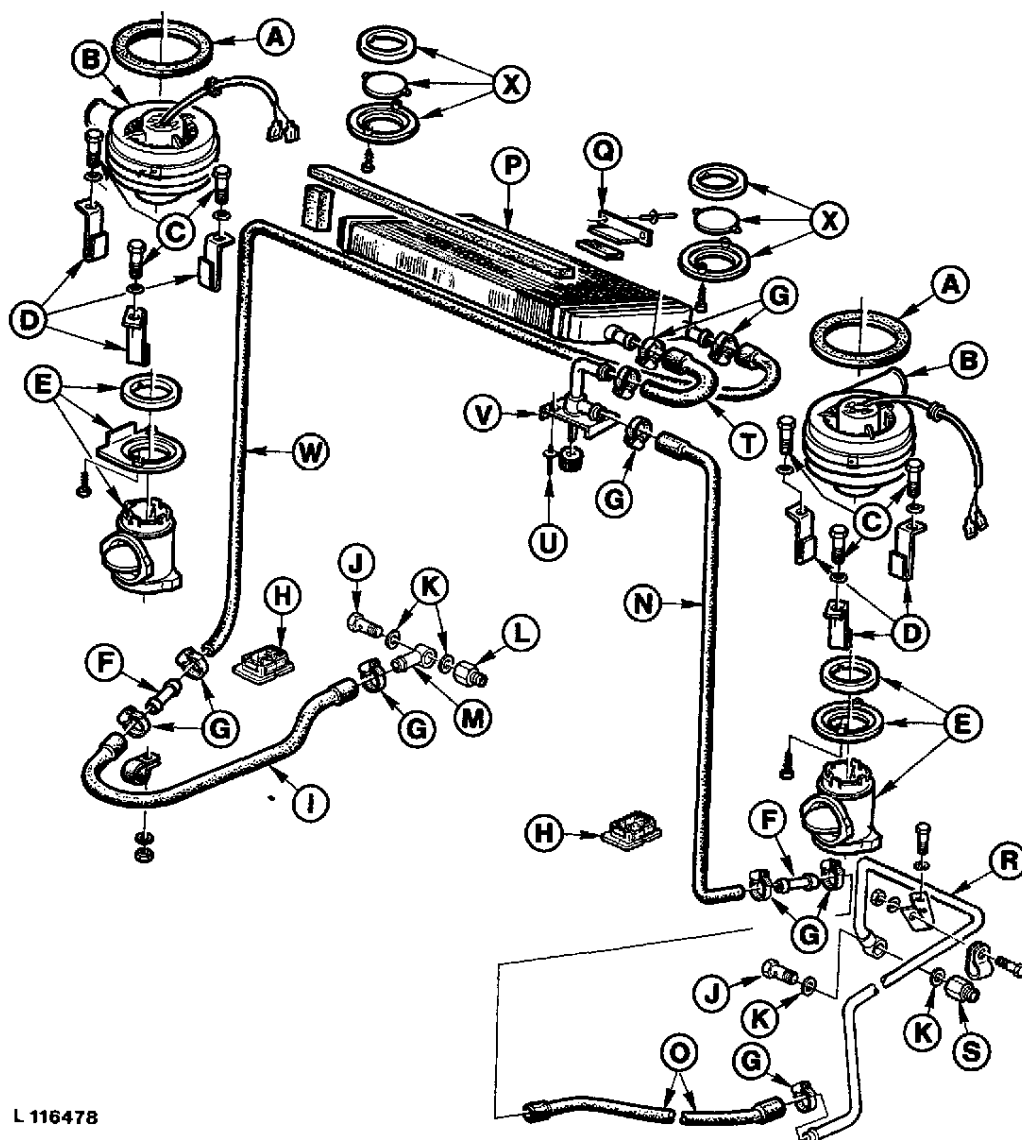
SHUT-OFF VALVE, CAB PLATFORM HEATING

The shut-off valve (A) is located under the right-hand side of cab.



L119 825

L119825-LB29010AE-000488

CAB VENTILATION AND HEATING – SG2 LOW PROFILE CAB**CAB VENTILATION AND HEATING, EXPLODED VIEW**

L 116478

A-Gasket
B-Fan assembly
C-Cap screws
D-Bracket
E-Air louver
F-Connecting pipe
G-Hose clamp
H-Special plug

I-Hot water hose (inlet flow)
J-Hollow screw
K-Seal rings
L-Connector
M-Hose connector
N-Hot water hose (return flow)
O-Hot water hose (return flow)
P-Radiator

Q-Bracket
R-Hot water line
S-Connector
T-Hot water hose
U-Control knob
V-Heater regulator
W-Hot water hose (inlet flow)
X-Air louver

L116478-LB39015AE-010287

REMOVING ROOF INTERIOR

Remove cab roof and radiator cover.

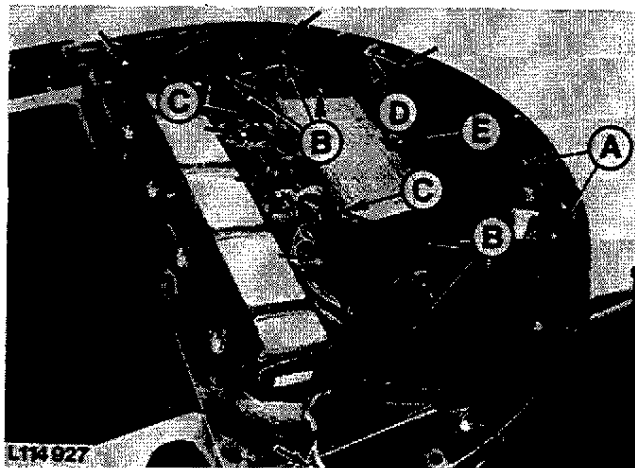
Disconnect cable plug (C) of fan motors and windshield washer hose at T-piece (D).

Remove self-tapping screws (A) and cap screws (B).

Remove insulating material from cable and windshield washer hose.

Remove bracket (E).

- A—Self-tapping screws (12 used)
- B—Cap screws (6 used)
- C—Plug
- D—T-piece
- E—Bracket



L114927-LB29015AE-000886

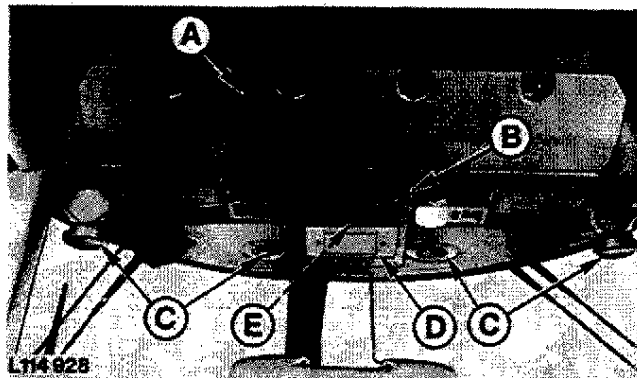
REMOVING COVERS AND AIR LOUVERS

Loosen cover with switch (B).

Remove air filter (A), radio console (D), when equipped, air louvers (C) and sun visor.

Remove Phillips screw (E) located behind the roof inner cover.

- A—Air filter
- B—Cover with switch
- C—Air louvers
- D—Radio console (when equipped)
- E—Phillips screw



L114928-LB29015AE-010886

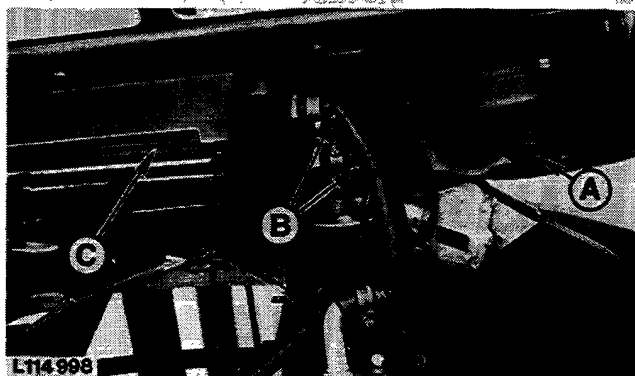
REMOVING FAN ASSEMBLY AND RADIATOR

Drain cooling system.

Raise cab inner section and support with two pieces of wood.

Disconnect hot water hoses (B) at radiator (C).

Remove radiator (C) and fan assembly (A) from roof.



L114998-LB29015AE-010886

REMOVING HOT WATER HOSES

Disconnecting Point – SG2 Cab

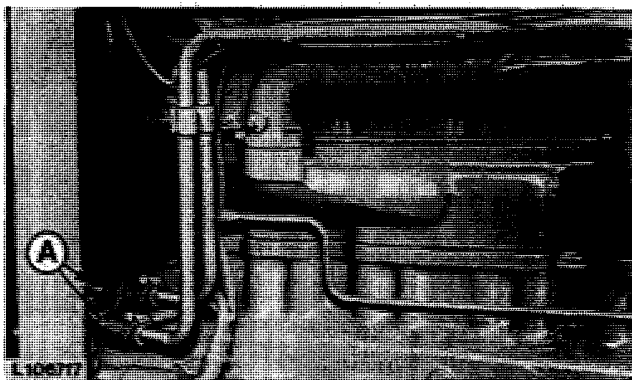
Disconnect hot water hoses at bottom left and right-hand side of cab at connecting pipe (A).



L114999-LB29015AE-010886

Disconnecting Point – Engine

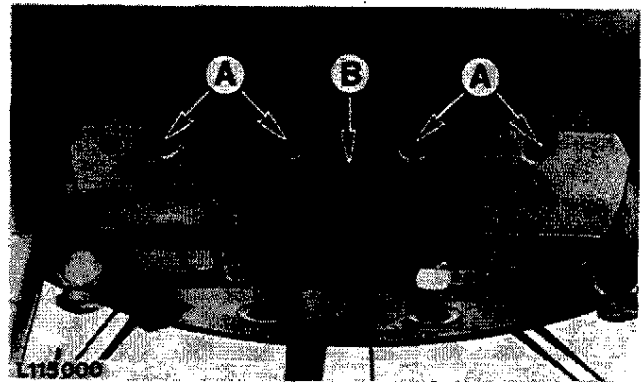
Disconnect hot water hoses (A).



L106717-LA79010AE-091184

REMOVING AIR FILTER

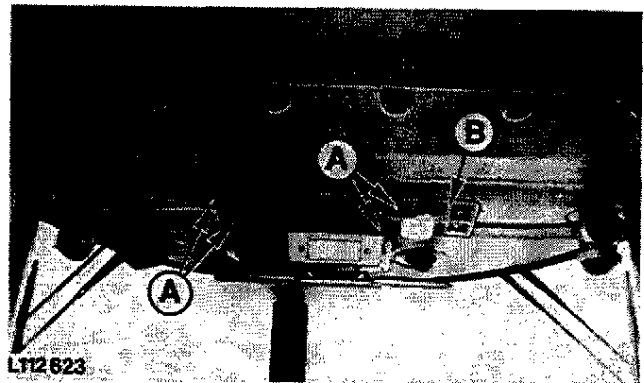
Remove attaching screws (A) and lift out cover with filter (B) from cab roof.



L115000-LB29015AE-010886

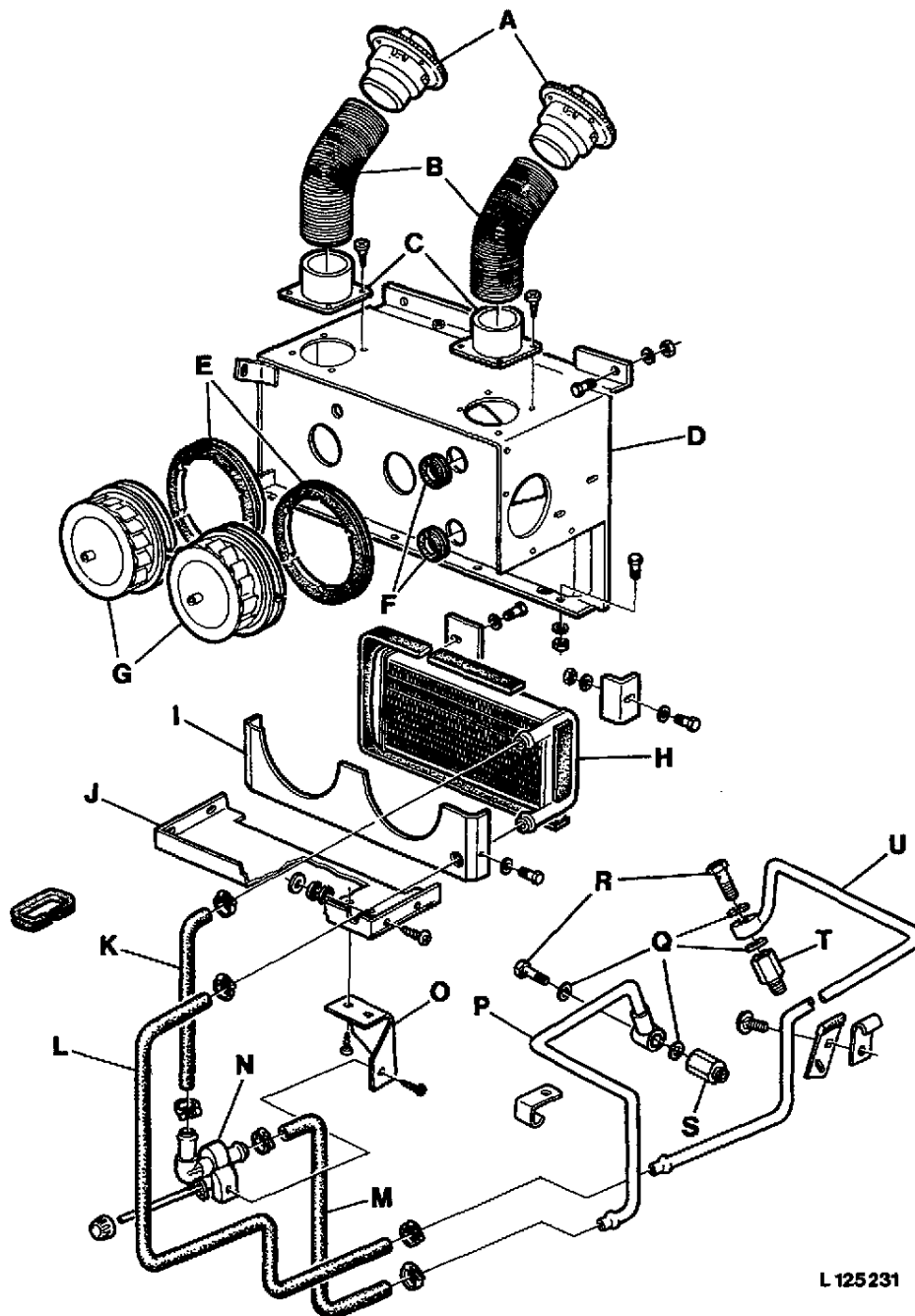
REMOVING AIR CIRCULATION FILTER

Remove Phillips screws (A) and loosen cover with switch (B).
Lift out foam pad filter.



L112623-LB29015AE-010886

CAB VENTILATION AND HEATING, EXPLODED VIEW



L 125 231

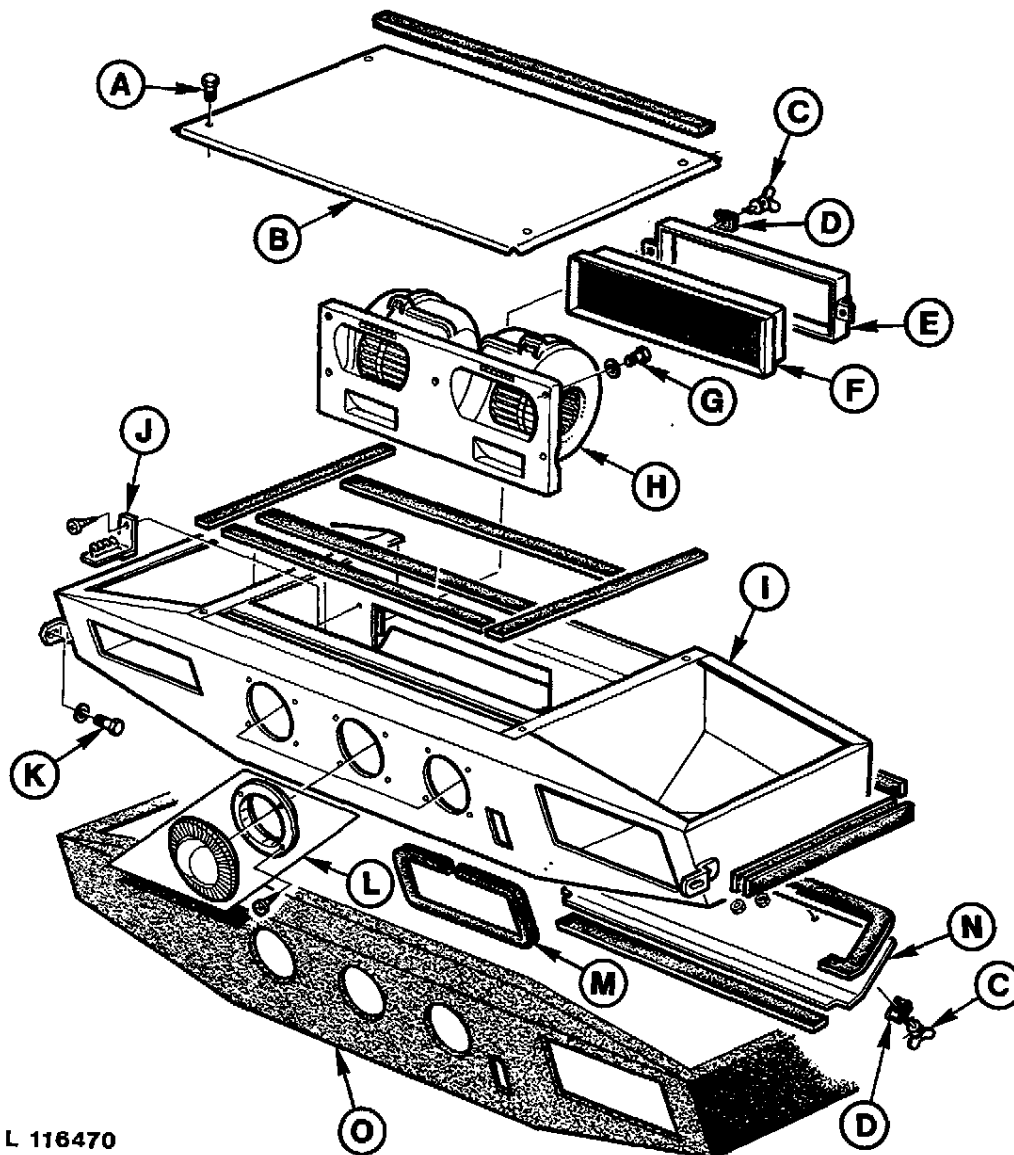
A–Air louvers
B–Air hoses
C–Connecting flanges
D–Fan housing
E–Seal rings
F–Seal rings
G–Fan

H–Radiator
I–Sheet metal holder
J–Cover
K–Hot water hose (inlet flow)
L–Hot water hose (return flow)
M–Hot water hose (inlet flow)
N–Heater regulator

O–Bracket
P–Hot water pipe (inlet flow)
Q–Seal rings
R–Hollow screw
S–Connector
T–Connector
U–Hot water pipe (return flow)

L125231-LB39020AE-010888

VENTILATION IN CAB ROOF, EXPLODED VIEW



L 116470

A—Cap screw (4 used)
B—Cover
C—Wing screw (4 used)
D—Attaching clip (4 used)
E—Filter frame

F—Air filter
G—Cap screw (5 used)
H—Fan
I—Fan housing
J—Resistor

K—Cap screw (2 used)
L—Air louver (3 used)
M—Molding
N—Cover
O—Headliner

L116470-LB39020AE-010287

REMOVING FAN AND RADIATOR

Drain cooling system

Remove dash covers.

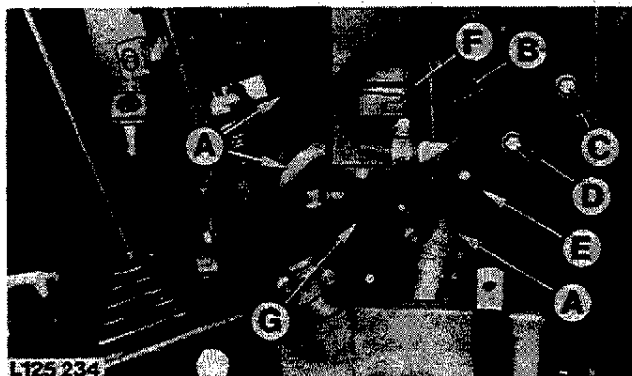
Disconnect hot water hoses (A) at heater regulator (G) (on later tractor series) and at radiator and remove cover (E).

Remove cap screw (D) on right and left-hand side and lift out radiator holder (B) from the bottom.

Disconnect wiring from fan motors (F).

Remove cap screw (C) and lift out radiator.

A—Hot water hoses
B—Sheet metal holder
C—Cap screw
D—Cap screw (2 used)
E—Cover
F—Fan motor (2 used)
G—Heater regulator



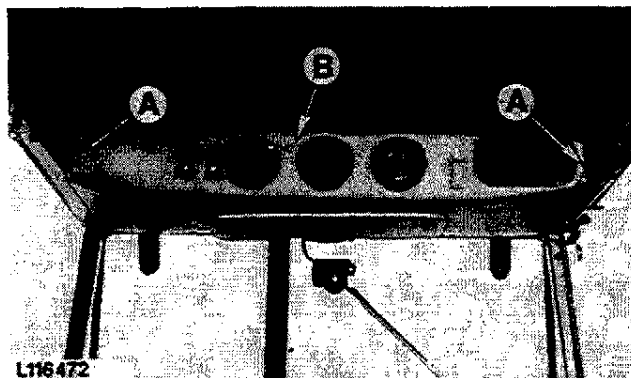
L125234-LB39020AE-010888

REMOVING FAN FROM CAB ROOF

Remove both cap screws (A) and lift off fan housing assembly (B).

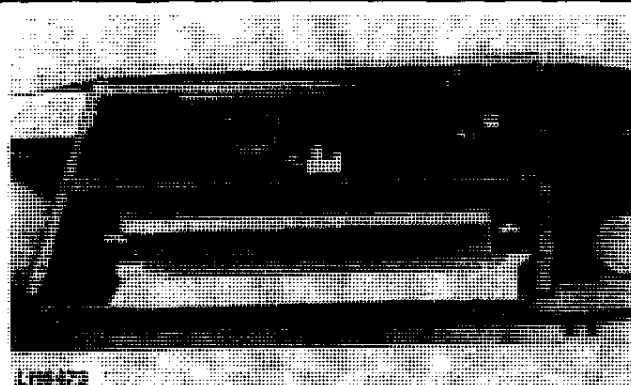
Disconnect fan wiring harness.

Remove fan housing cover. Disconnect work light wiring harness (when equipped).



L116472-LB39020AE-010287

Remove fan.



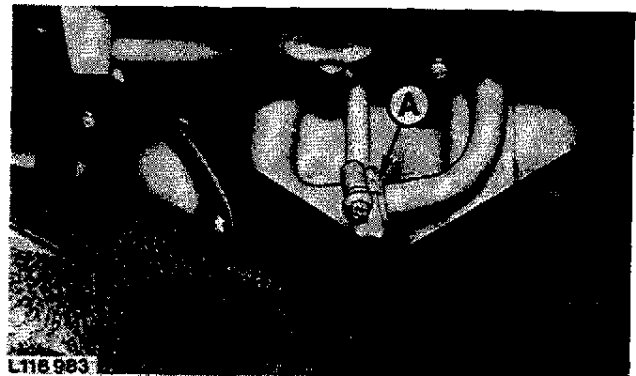
L116473-LB39020AE-010287

REMOVING HOT WATER HOSES

Disconnecting Point – Cab

Remove cover.

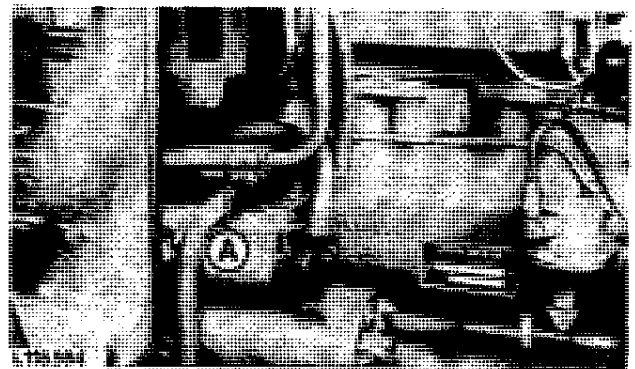
Disconnect hot water hose (A).



L116983-LB39020AE-010287

Disconnecting Point – Engine

Disconnect hot water hose (A).



L116994-LB39020AE-010287

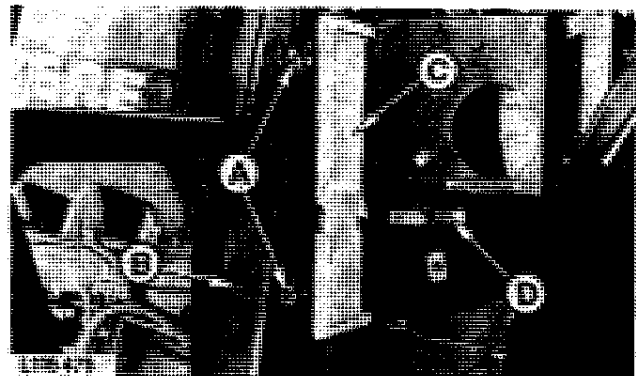
REMOVING CAB AIR FILTERS

In Cowl

Remove left-hand side cover.

Loosen locking bolts (A) and lift off cover (B).

Open latch (D) and pull out filter (C).

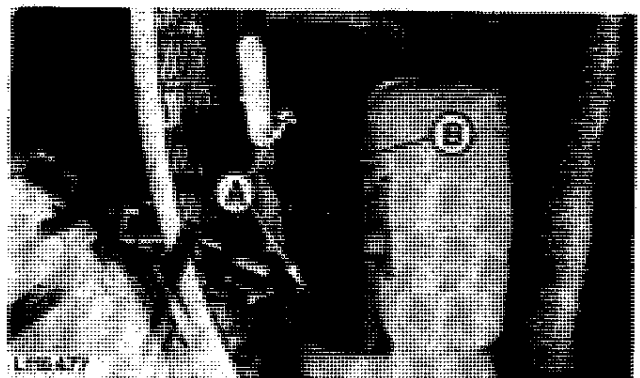


L116476-LB39020AE-010287

In Cab Roof

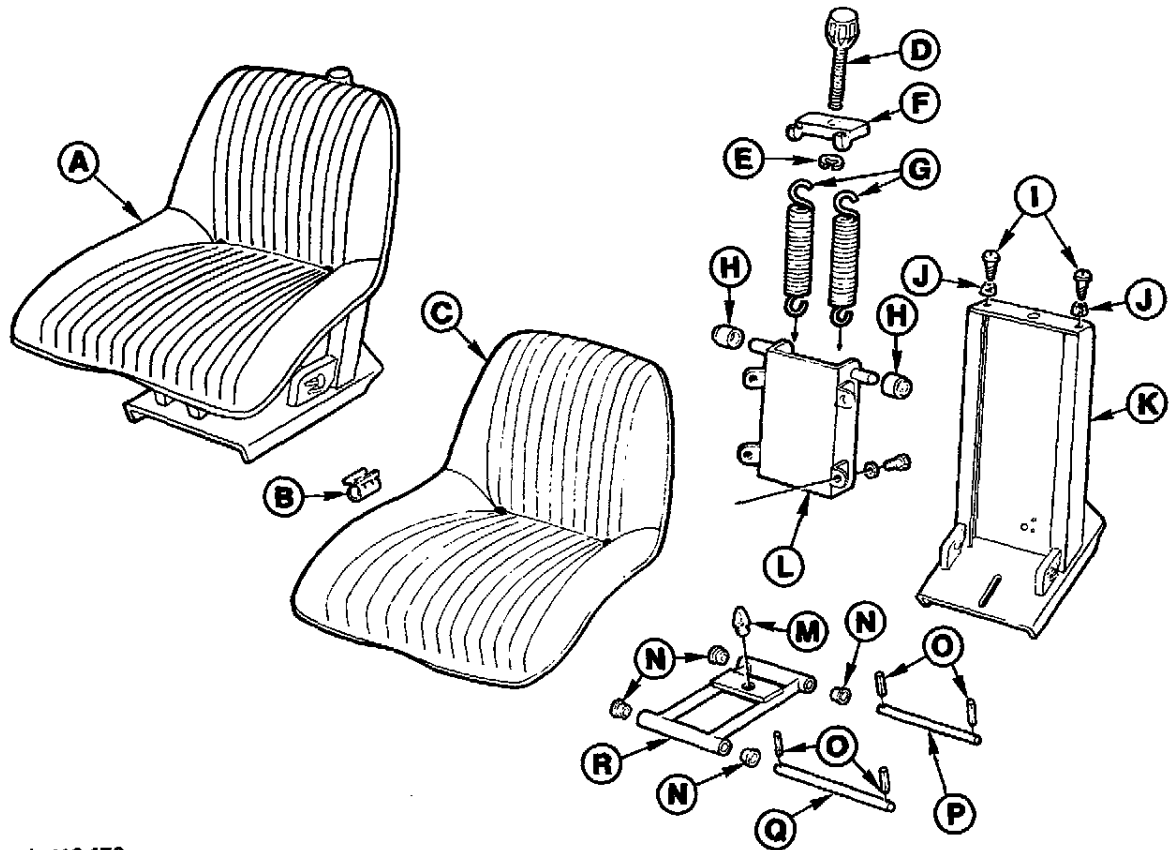
Loosen wing screws (A) and lift off cover (B).

Loosen filter retaining clips and remove filter from frame.



L116477-LB39020AE-010287

STANDARD OPERATOR'S SEAT DS44/L1 (WITHOUT CAB) - EXPLODED VIEW



L 116 479

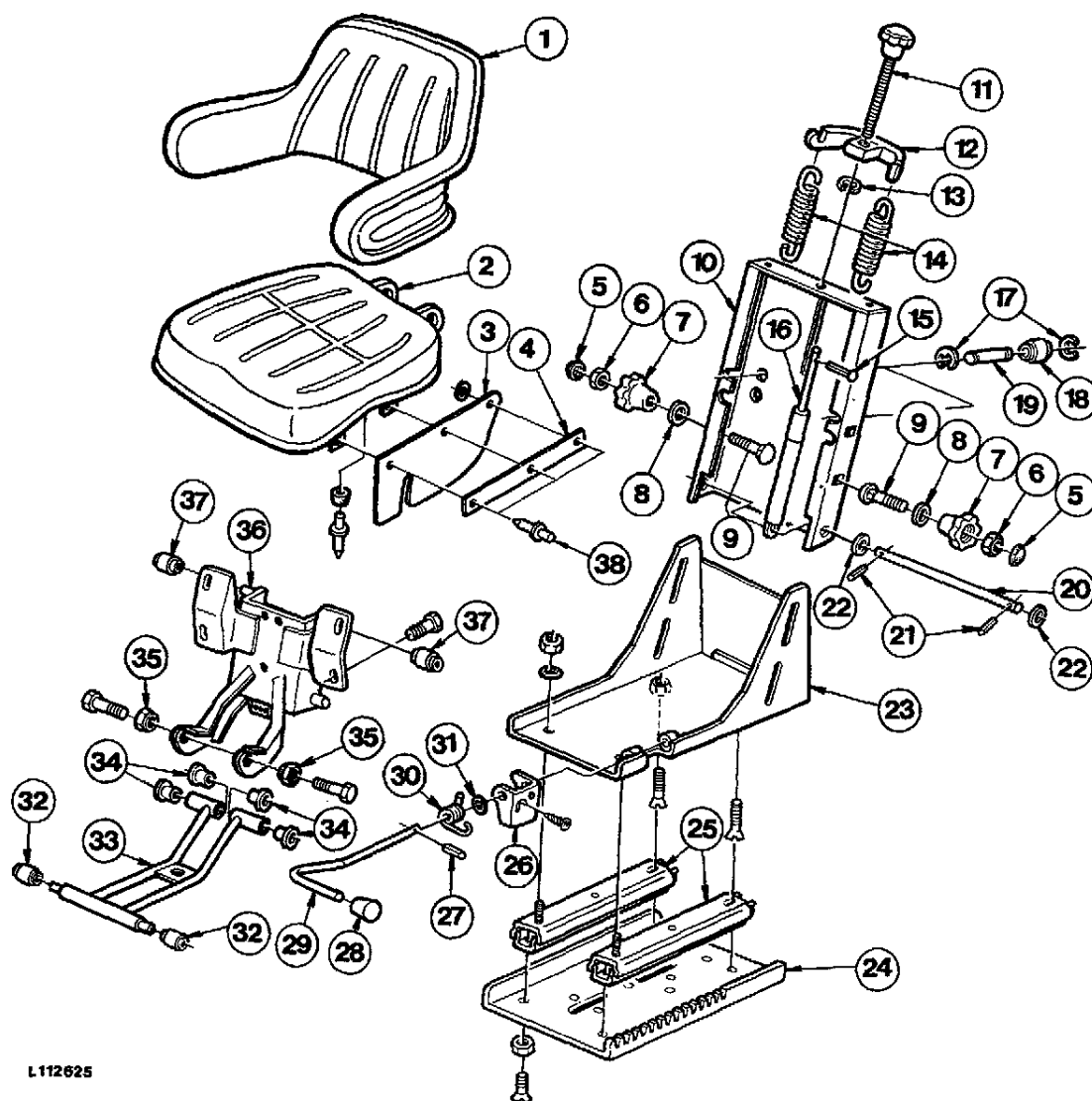
A—Seat assembly
B—Clamp (8 used)
C—Seat cushion
D—Adjusting spindle
E—Retaining ring
F—Spring bracket
G—Springs

H—Guide roller
I—Self-tapping screws
J—Rubber grommet
K—Spring housing
L—Seat frame
M—Stop

N—Guide bushing
O—Spring pins
P—Pin
Q—Pin
R—Seat suspension

L116479-LB39025AE-010888

DE LUXE OPERATOR'S SEAT DS44/2H-4 (WITHOUT CAB) - EXPLODED VIEW



L112625

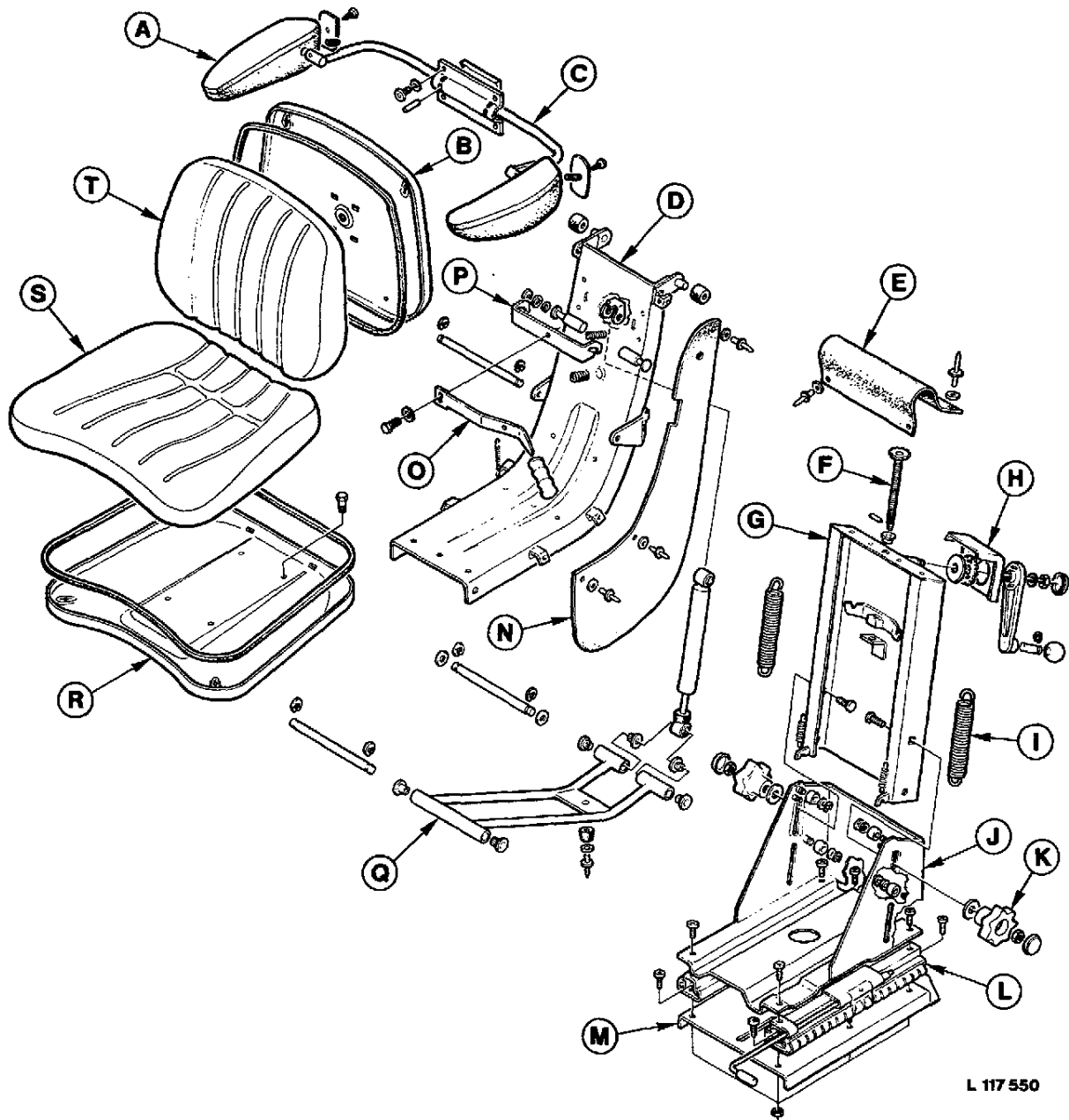
- 1-Back rest
- 2-Seat cushion
- 3-Rubber guard (2 used)
- 4-Attaching strap (2 used)
- 5-Caps
- 6-Hex. nuts
- 7-Hand grips
- 8-Washers
- 9-Round flat-headed screws
- 10-Spring housing
- 11-Adjusting spindle
- 12-Spring bracket

- 13-Snap ring
- 14-Springs
- 15-Pin
- 16-Shock absorber
- 17-Snap rings (4 used)
- 18-Guide roller (2 used)
- 19-Pin (2 used)
- 20-Pin
- 21-Spring pins
- 22-Washers
- 23-Frame for height adjustment
- 24-Plate for length adjustment
- 25-Adjusting rails

- 26-Locking latch
- 27-Spring pin
- 28-Lever knob
- 29-Length adjustment lever
- 30-Spring
- 31-Washer
- 32-Guide rollers
- 33-Seat suspension
- 34-Guide bushings
- 35-Hex. nuts
- 36-Seat frame
- 37-Guide rollers
- 38-Rivets (6 used)

L112625-LB39025AE-010888

DE LUXE OPERATOR'S SEAT DS44/90A (WITHOUT CAB) - EXPLODED VIEW



L 117 550

A-Arm rest cushion
B-Back rest
C-Support
D-Seat frame
E-Cover

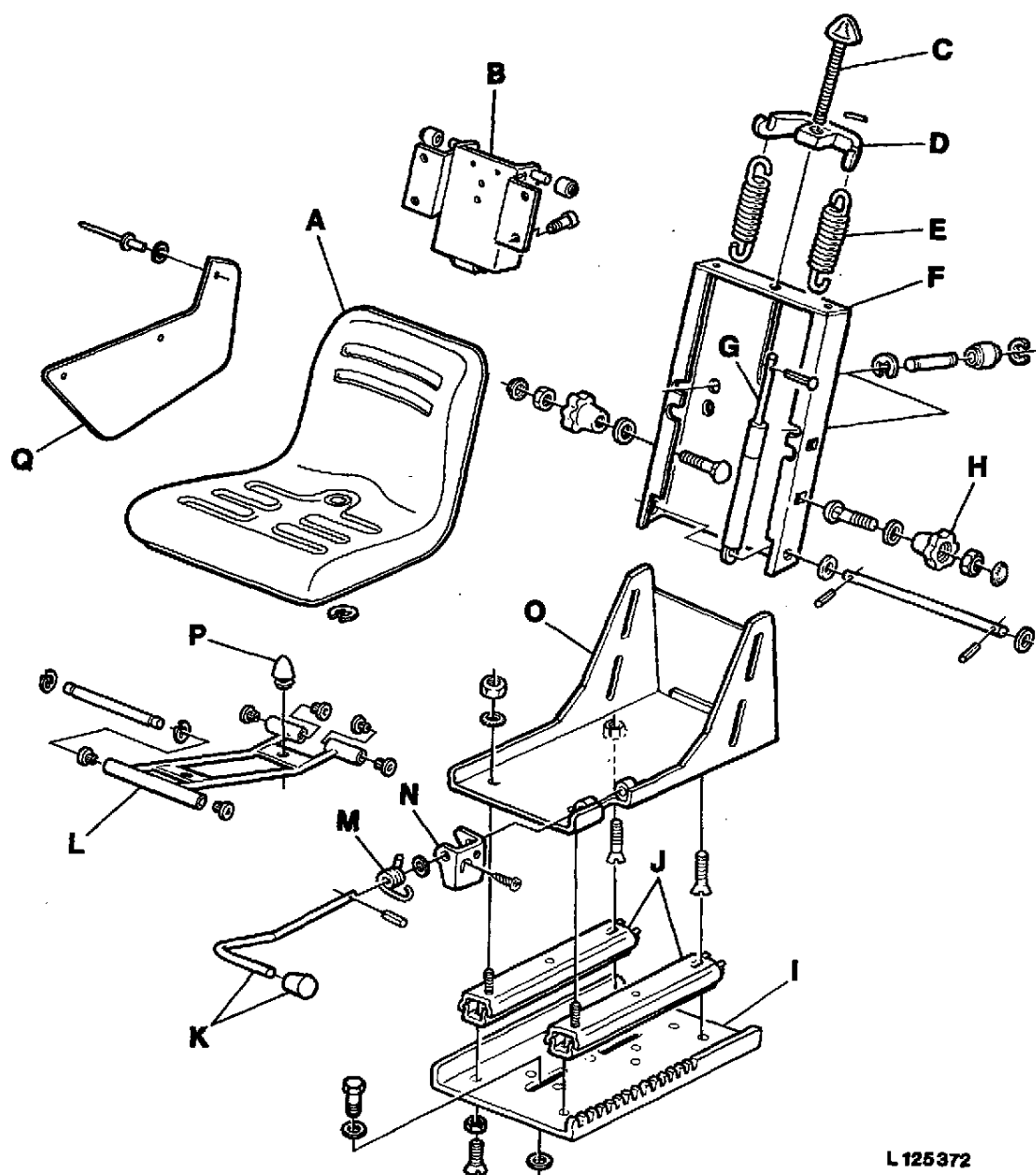
F-Adjusting spindle
G-Spring housing
H-Height adjuster
I-Springs
J-Frame for height adjustment

K-Hand grips
L-Adjuster rails
M-Plate for length adjustment
N-Cover
O-Lever

P-U-bracket
Q-Seat frame
R-Frame for seat cushion
S-Seat cushion
T-Back rest cushion

L117550-LB49010AE-010687

**DE LUXE OPERATOR'S SEAT DS44/8H (NARROW TREAD TRACTORS) –
EXPLODED VIEW**



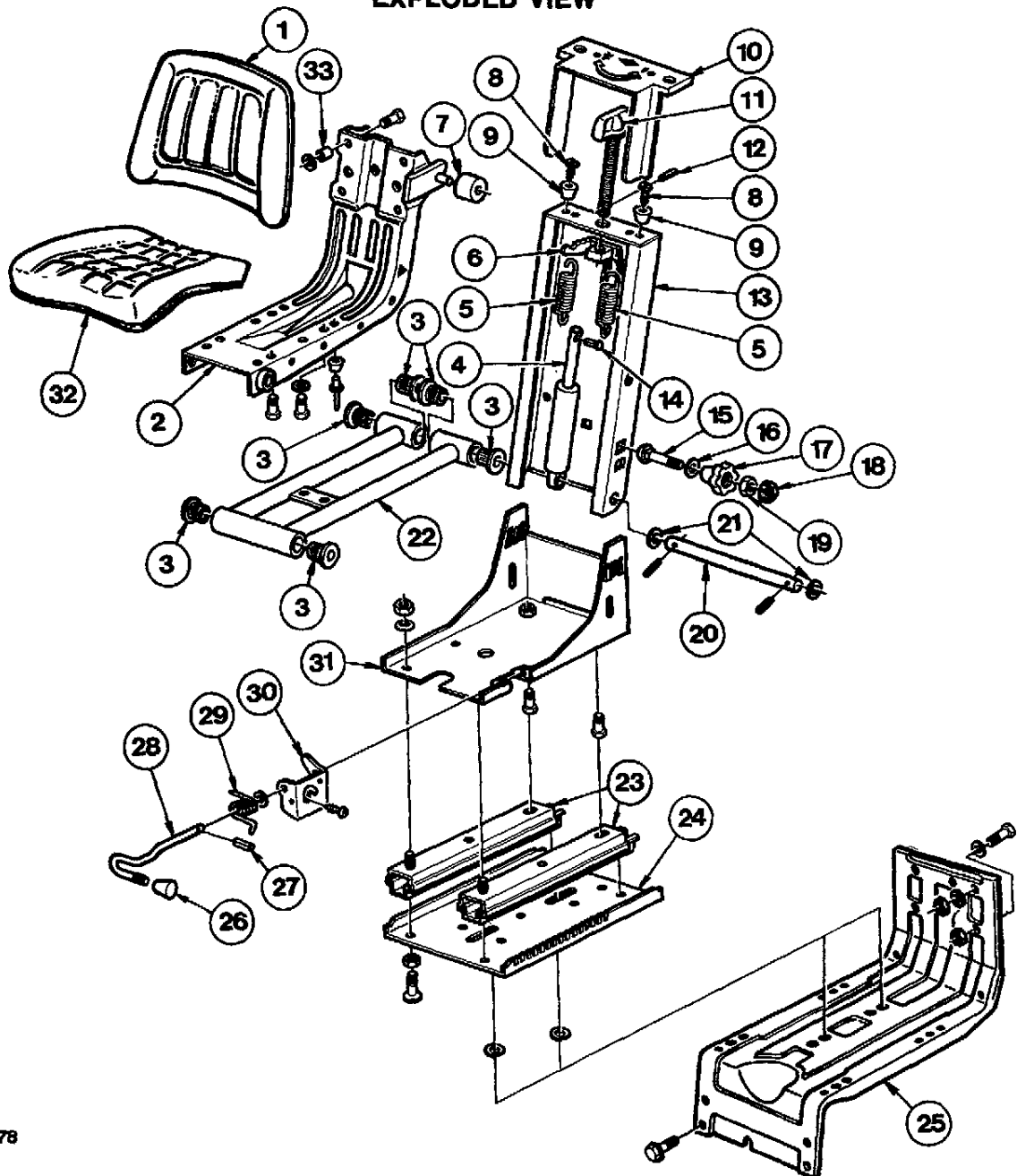
L 125372

- A—Seat**
B—Seat frame
C—Adjusting spindle
D—Spring housing
E—Spring (2 used)
F—Spring housing

- G—Shock absorber**
H—Hand grip (2 used)
I—Plate for length adjustment
J—Adjustment rails
K—Lever for length adjustment

- L—Seat suspension**
M—Spring
N—Locking latch
O—Frame for height adjustment
P—Stop
Q—Cover

DE LUXE OPERATOR'S SEAT DS44/1H-4G (WITH SG2 AND MC1 CAB) - EXPLODED VIEW



L119 878

- 1-Back rest
- 2-Seat frame
- 3-Guide bushings
- 4-Shock absorber
- 5-Springs
- 6-Spring bracket
- 7-Guide roller
- 8-Self-tapping screws
- 9-Rubber grommet

- 10-Cover*
- 11-Adjusting spindle
- 12-Spring pin
- 13-Spring housing
- 14-Pin
- 15-Flat round-headed screw (2 used)
- 16-Washer (2 used)

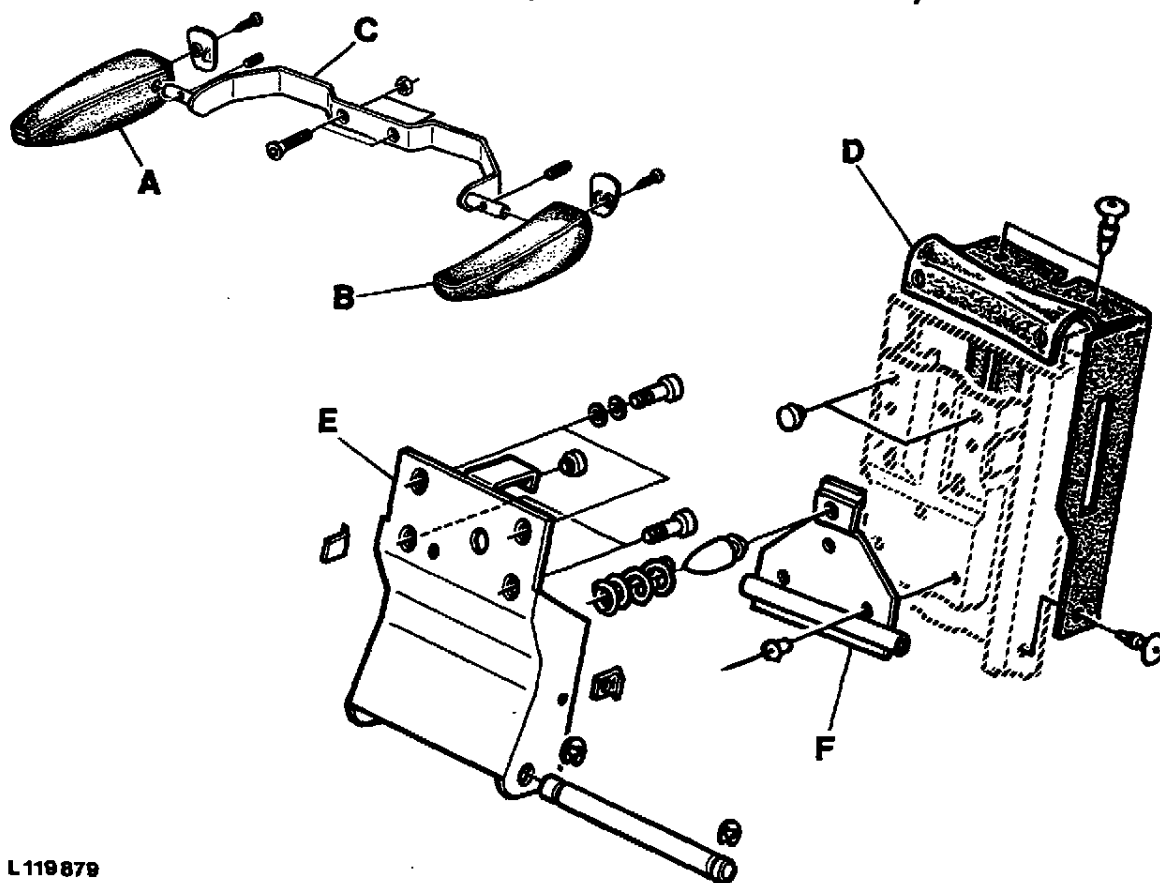
- 17-Hand grip (2 used)
- 18-Cap (2 used)
- 19-Hex. nut (2 used)
- 20-Pin
- 21-Snap rings
- 22-Seat suspension
- 23-Adjustment rails
- 24-Plate for length adjustment

- 25-Seat support
- 26-Adjustment lever knob
- 27-Spring pin
- 28-Lever for length adjustment
- 29-Spring
- 30-Locking latch
- 31-Frame for height adjustment
- 32-Seat cushion
- 33-Bushing (4 used)*

* Installed on seats without back rest springs only

L119878-LB39025AE-010888

**ARM RESTS AND BACK REST SPRINGS – DE LUXE OPERATOR'S SEAT DS44/1HA-4G,
EXPLODED VIEW (WITH SG2 AND MC1 CAB)**



L119879

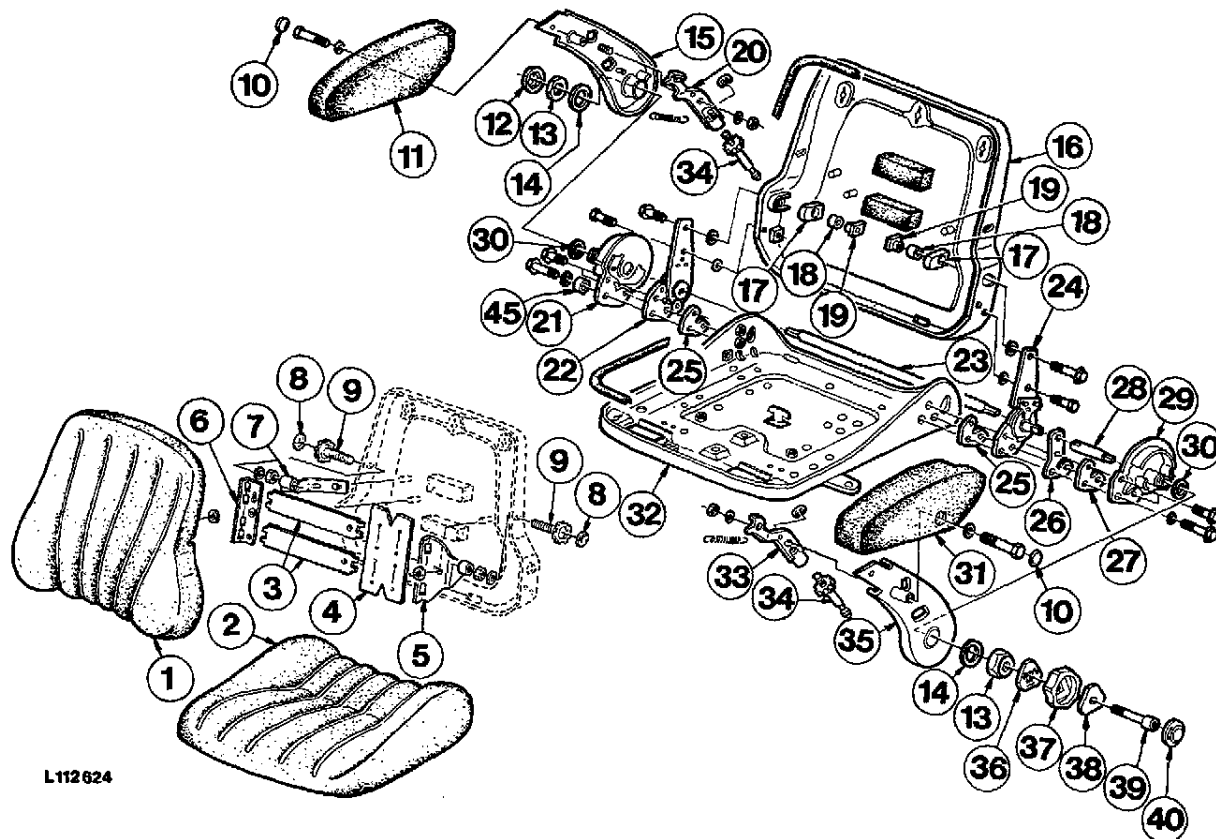
A—Arm rest cushion, right-hand
B—Arm rest cushion, left-hand

C—Arm rest supports
D—Cover

E—Back rest spring support
F—Back rest spring plate

L119879-LB39025AE-010888

**SUPER DE LUXE OPERATOR'S SEAT DS85/90A UPPER SECTION,
EXPLODED VIEW (WITH SG2 CAB)**



L112624

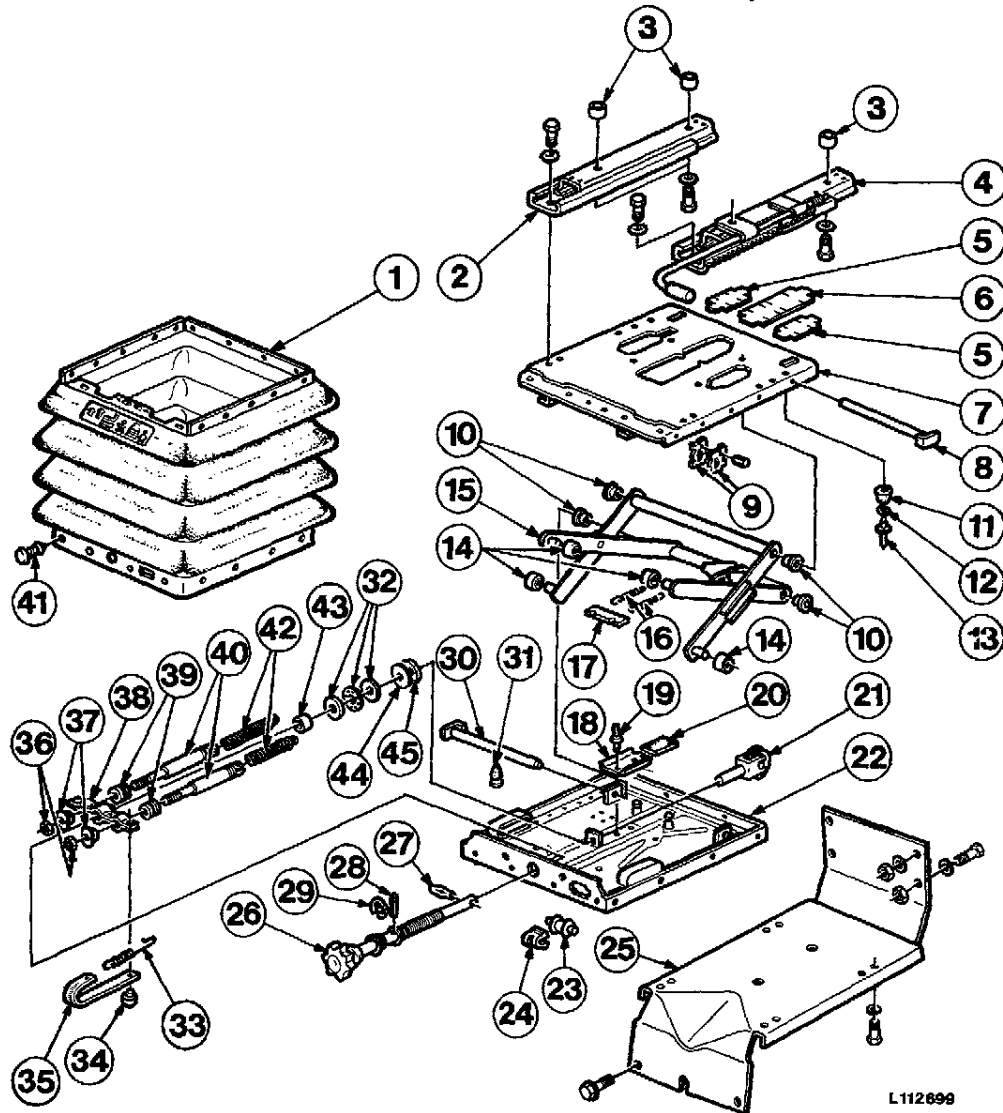
- 1-Back rest cushion
- 2-Seat cushion
- 3-Plate
- 4-Plate
- 5-Bracket
- 6-Angle bracket
- 7-Console
- 8-Handle cover
- 9-Adjustment spindle with handle
- 10-Cover
- 11-Arm rest cushion
- 12-Protective cap
- 13-Hex. nut (2 used)

- 14-Washer
- 15-Arm rest
- 16-Back rest
- 17-Rubber grommet (2 used)
- 18-Bushing (2 used)
- 19-Special nut
- 20-Adjustment lever
- 21-Plate
- 22-Adjustment link
- 23-Adjustment rod
- 24-Adjustment link
- 25-Plate (2 used)
- 26-Plate
- 27-Plate

- 28-Adjustment rod
- 29-Plate
- 30-Washer (2 used)
- 31-Arm rest cushion
- 32-Length adjustment frame
- 33-Adjustment lever
- 34-Adjustment spindle
- 35-Arm rest
- 36-Special washer
- 37-Hand wheel
- 38-Special washer
- 39-Hex. socket screw
- 40-Hand wheel cover

L112624-LB29020AE-010488

SUPER DE LUXE OPERATOR'S SEAT DS85/90A – LOWER SECTION, EXPLODED VIEW (WITH SG2 CAB)



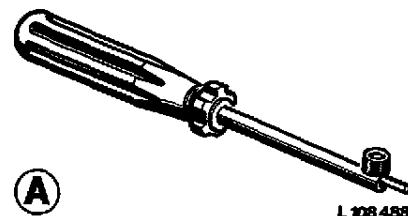
- | | | | |
|------------------------------|---------------------------|-----------------------|-------------------------------|
| 1-Rubber cover | 12-Spacer washer (2 used) | 23-Roller | 34-Plug |
| 2-Adjustment rail | 13-Rivet (2 used) | 24-Guide | 35-Band with weight indicator |
| 3-Bushings | 14-Roller (4 used) | 25-Seat support | 36-Hex. nuts |
| 4-Adjustment rail with catch | 15-Swivel arm | 26-Adjustment spindle | 37-Special nuts |
| 5-Plate (2 used) | 16-Spring (2 used) | 27-Slotted pin | 38-Spring block |
| 6-Plate | 17-Plate | 28-Spring pin | 39-Special nuts |
| 7-Length adjustment plate | 18-Rail | 29-Snap ring | 40-Shock absorber |
| 8-Pin | 19-Rivet (2 used) | 30-Pin | 41-Plug (36 used) |
| 9-Plate (2 used) | 20-Plate | 31-Stop | 42-Springs |
| 10-Bushing (4 used) | 21-Roller | 32-Thrust bearing | 43-Bushing |
| 11-Stop (2 used) | 22-Spring housing | 33-Spring | 44-Washer |
| | | | 45-Special washer |

L112699-LB29020AE-010488

SPECIAL TOOLS

**A—Removing and installing
a cab window**

JDST-29



L 108488

L108488-LA79020AE-001184

TORQUES FOR HARDWARE

Cab to mounting brackets or final drives, cap screws or hex. nuts	200 Nm (145 ft-lb)
Stud in final drive housing	35 Nm (25 ft-lb)
Windshield wiper motor to cab roof, hex. nut	20 Nm (15 ft-lb)
Windshield wiper arm to motor, hex. nut	14 Nm (10 ft-lb)

SG2KAB-LB29025AE-000886

REMOVING SG2 CAB

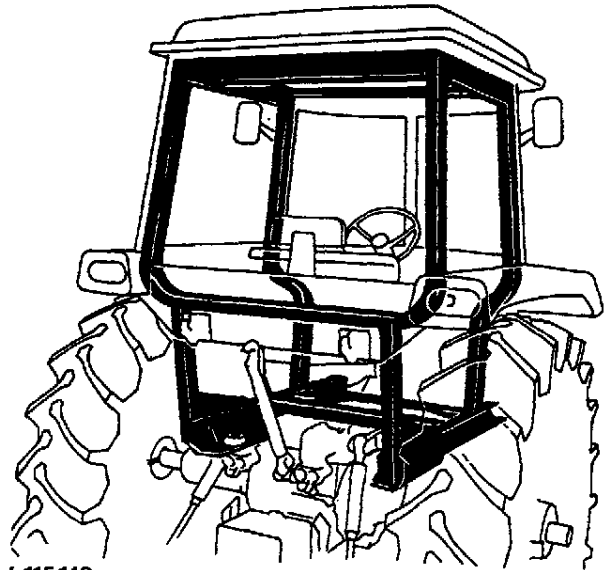
For removal of SG2 cab, see Section 10, Group 25.



CAUTION: If the SG2 cab is loosened or removed for any reason, make certain all parts are reinstalled correctly to maintain roll-over protection. Tighten mounting bolts to correct torque.

A tractor roll-over may place a severe stress on the cab structure. Therefore, replace cab if structural members have been bent, buckled or stretched.

When making a repair on the cab frame, apart from welding on new door hinges, no welding, grinding, drilling or cutting of any type should be done on the cab structural members. Doing so may weaken the members sufficiently to limit their effectiveness in protecting the operator if a roll-over or upset should occur.



L115149

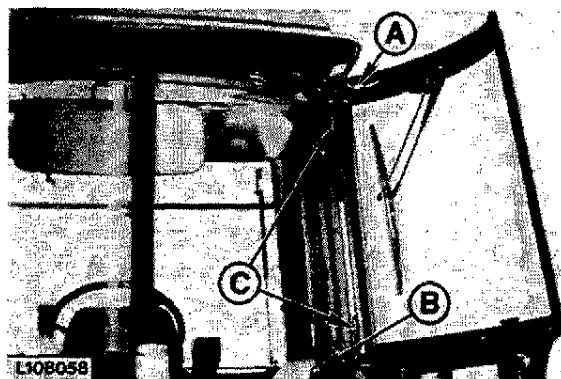
L115149-LB29025AE-010886

REMOVING CAB DOOR

Disconnect plug (A).

Remove door stop pin (B).

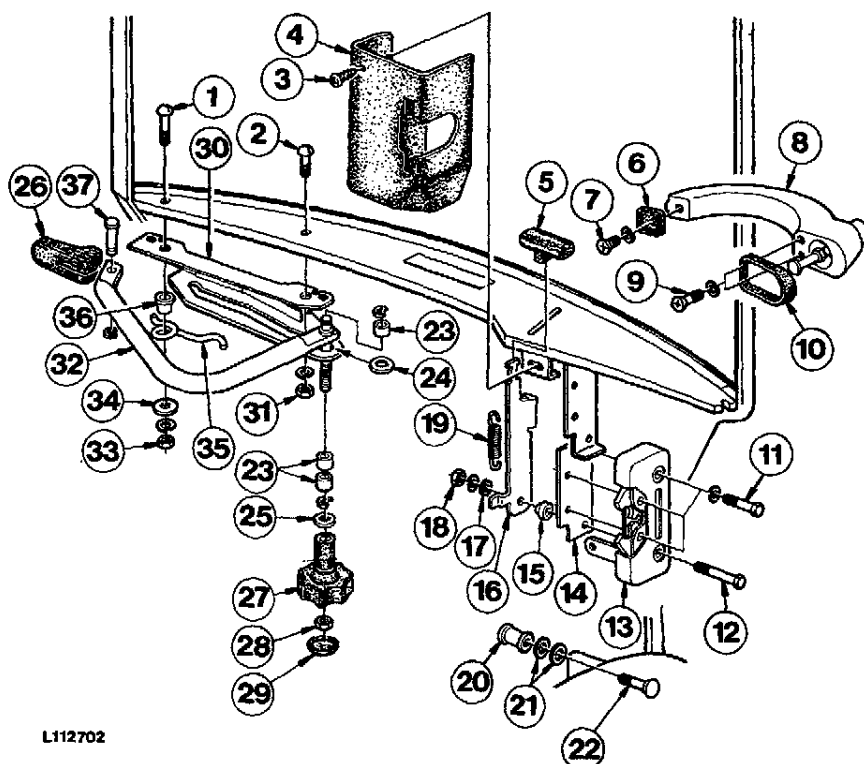
Remove hinge pins (C).



L108058

L108058-LA79020AE-091184

DOOR STOP AND HANDLE, EXPLODED VIEW



L112702

- 1-Half-round screw
- 2-Half-round screw
- 3-Self-tapping screw
- 4-Door lock cover
- 5-Inner door handle grip
- 6-Spacer
- 7-Phillips screw
- 8-Outer door handle grip
- 9-Phillips screw (2 used)
- 10-Spacer

- 11-Cap screw (3 used)
- 12-Cap screw
- 13-Door lock
- 14-Lock plate
- 15-Bushing
- 16-Door handle lever
- 17-Washer
- 18-Hex. nut
- 19-Spring
- 20-Door lock pins

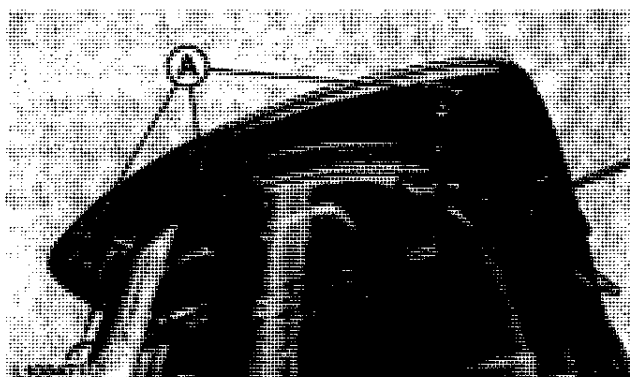
- 21-Washers
- 22-Flat-round headed screws
- 23-Bushings
- 24-Washers
- 25-Friction washer
- 26-Rubber cover
- 27-Handle grip
- 28-Hex. nut
- 29-Cap
- 30-Door stop

- 31-Hex. nut
- 32-Rod
- 33-Hex. nut
- 34-Washer
- 35-Spring
- 36-Bushing
- 37-Pin

L112702-LB29025AE-010886

REMOVING CAB OUTER ROOF

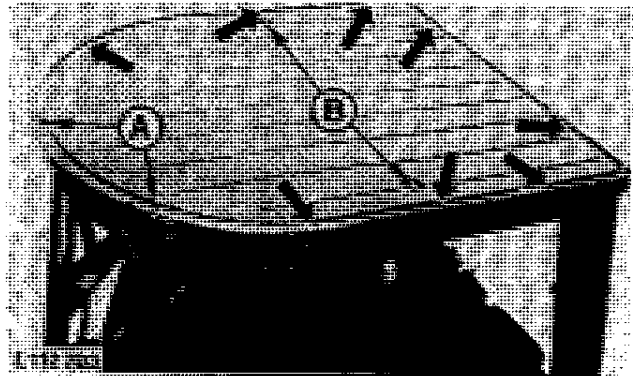
Remove both cap screws on upper side of roof and the three countersunk screws (A).



L108471-LA79020AE-091184

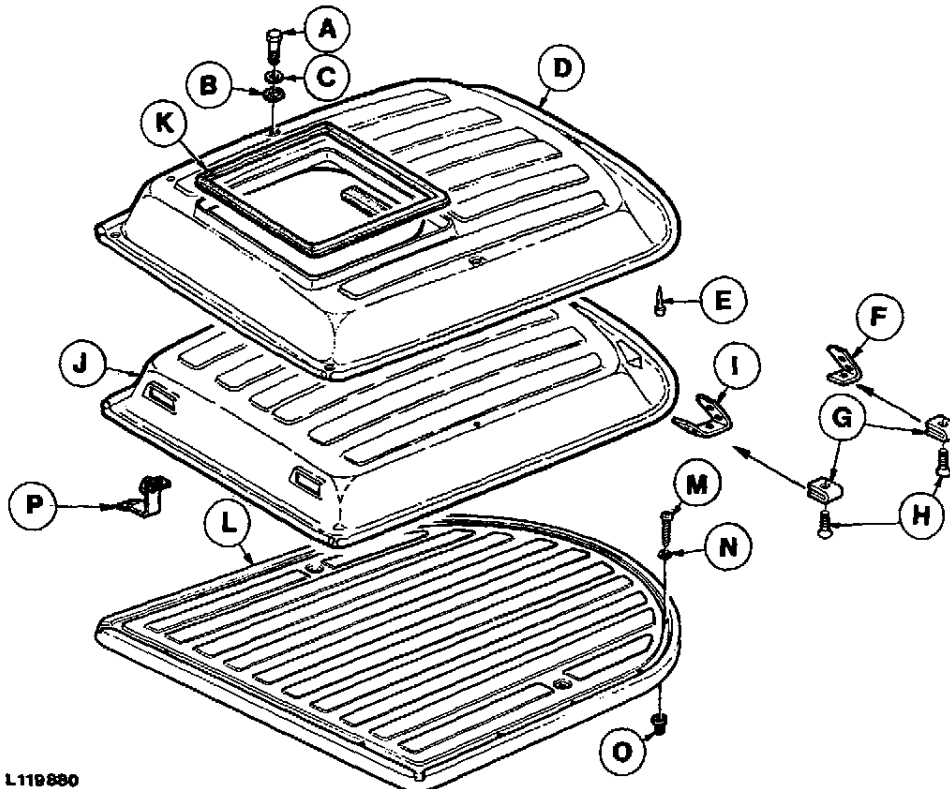
Tractors With Low Profile Cab

Remove both cap screws (B) and the eleven Phillips screws (A).



L112703-LB29025AE-010886

CAB OUTER ROOF, EXPLODED VIEW



L119880

A-Cap screw (2 used)
B-Rubber washer (2 used)
C-Washer (2 used)
D-Roof outer section (with hatch)
E-Rivet (10 used)

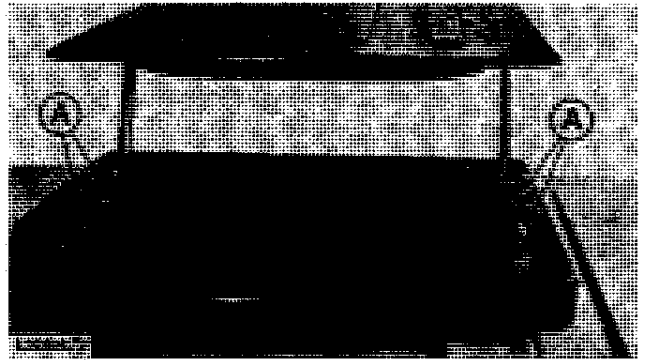
F-Stop (2 used)
G-Spring clips (3 used)
H-Countersunk screws (3 used)
I-Stop
J-Roof outer section (without hatch)

K-Gasket
L-Roof outer section (with low profile cab)
M-Phillips screw (11 used)
N-Washer (11 used)
O-Special nut (11 used)
P-Swing bracket (2 used)

L119880-LB29025AE-010488

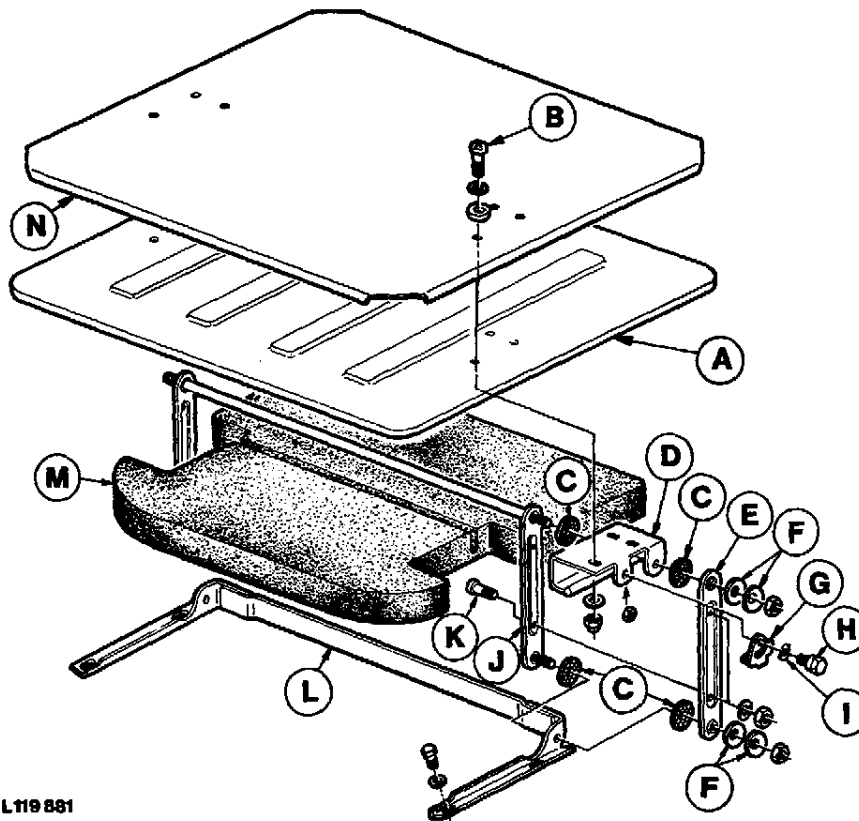
REMOVING HATCH

Remove cap screws (A) and lift off hatch assembly.



L108472-LA79020AE-061184

HATCH, EXPLODED VIEW



L119881

A-Hatch
B-Phillips screw (6 used)
C-Friction washer (8 used)
D-Bracket (2 used)
E-Link (2 used)

F-Spring washer (8 used)
G-Latch (2 used)
H-Special screw (2 used)
I-Spring washer (2 used)

J-Link with rod
K-Phillips screw (4 used)
L-Frame
M-Foam lining
N-Cover*

* When equipped

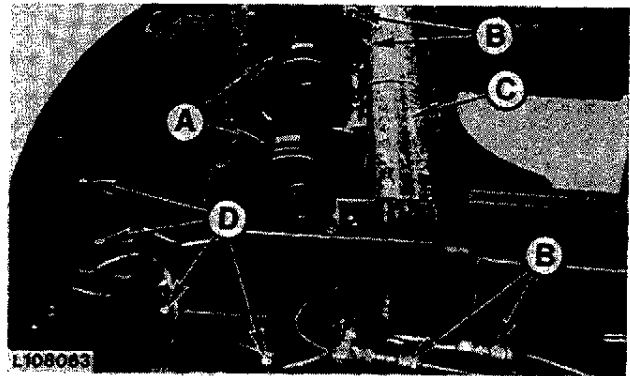
L119881-LB29025AE-010488

REMOVING CAB INNER ROOF

Drain cooling system. Discharge refrigerant from air conditioning system (see Group 06).
Disconnect pipes (B).

Remove evaporator with radiator (C).
Remove blower ventilation fan (A) (see Group 10).

Drill out rivets (D) and remove cab inner roof.



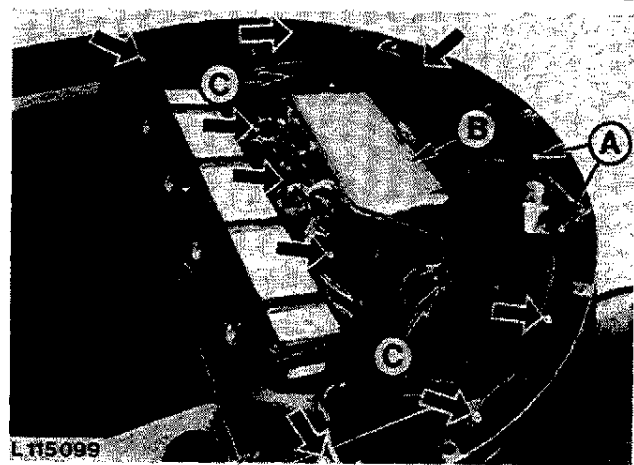
L108063-LB39030AE-010888

With Low Profile Cab

Drain cooling system.

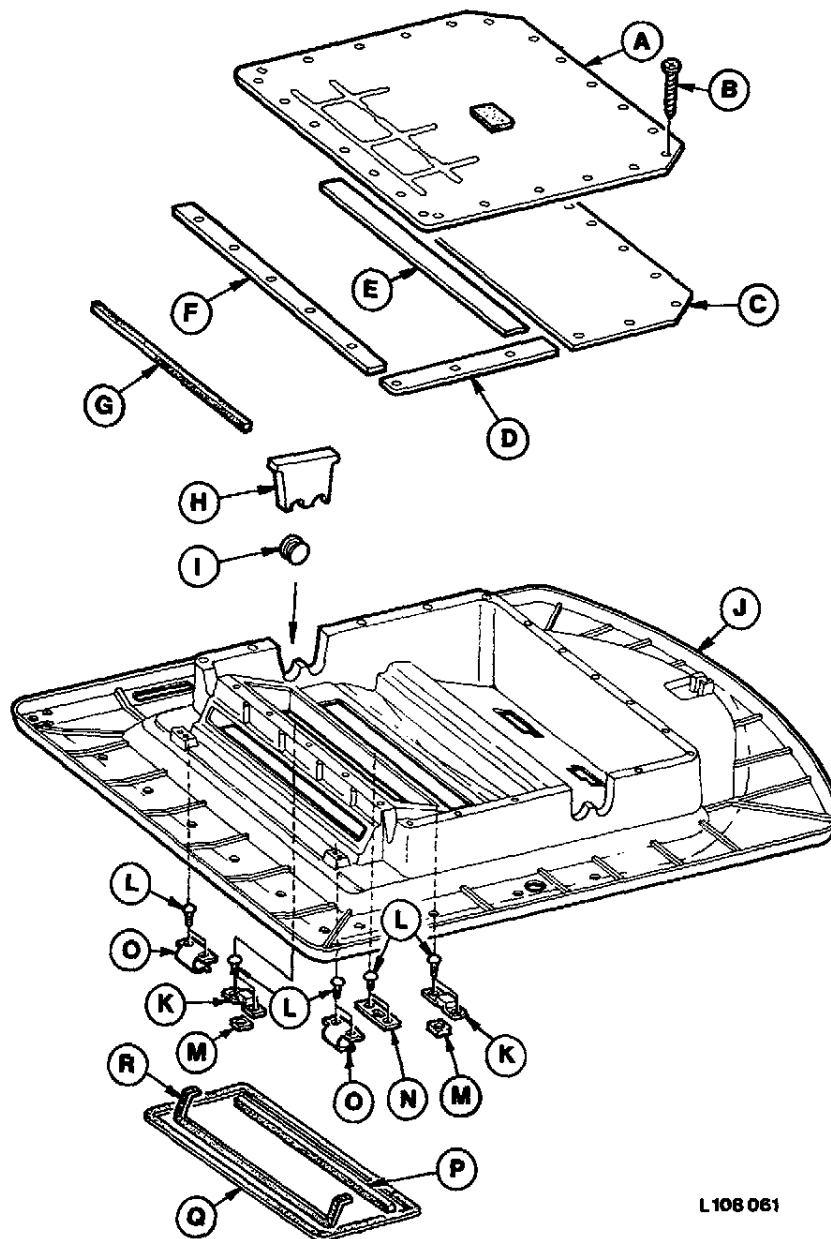
Remove radiator (B) and blower ventilation fan (C)
(see Group 15).

Remove cap screws (A) and lift out cab inner roof.



L115099-LB29025AE-010886

CAB INNER ROOF (WITHOUT HATCH), EXPLODED VIEW



L108 061

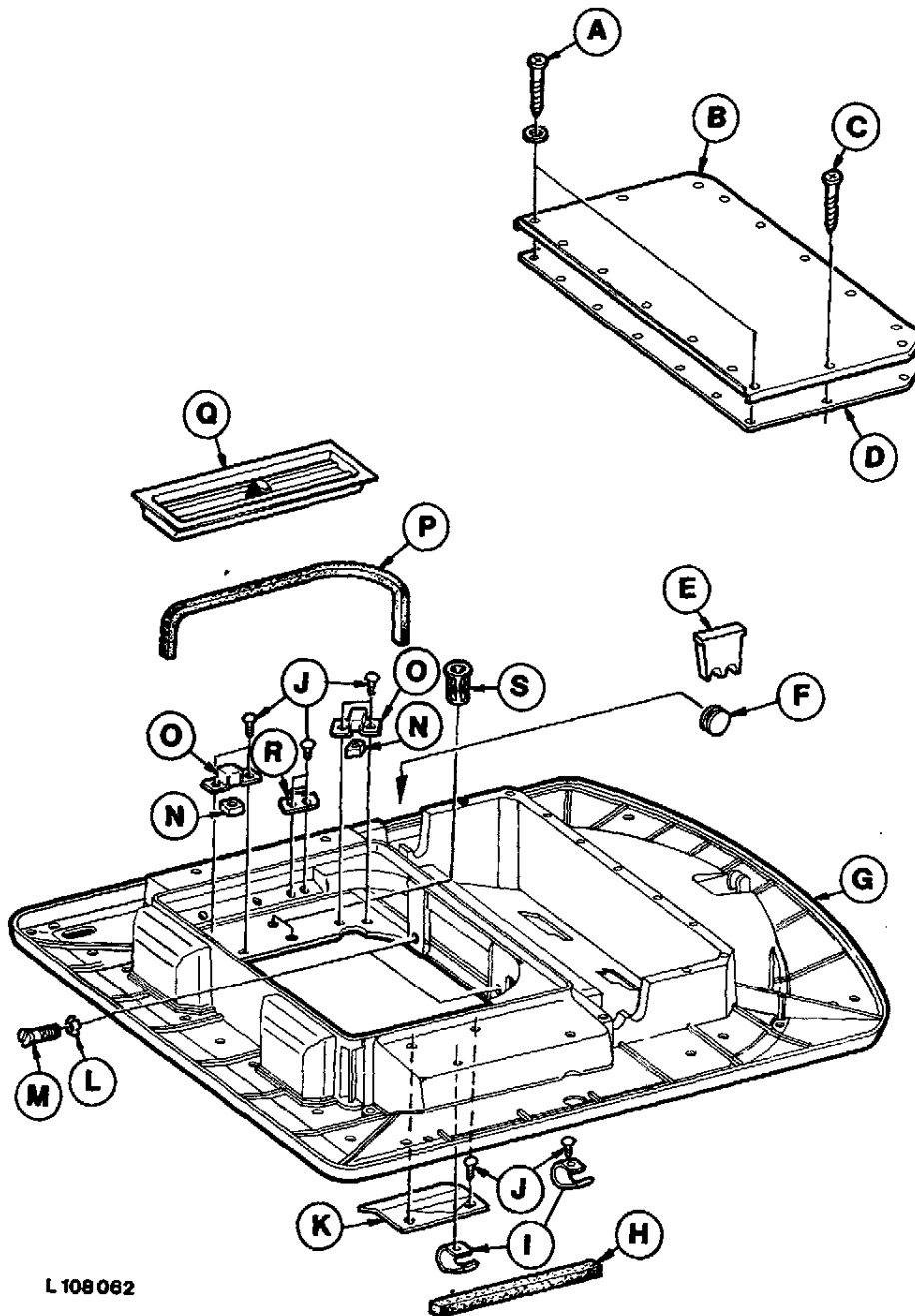
A-Cover
B-Phillips screw (22 used)
C-Gasket
D-Seal strip
E-Seal strip
F-Seal strip

G-Seal strip
H-Spacer
I-Rubber sleeve
J-Cab inner roof
K-Securing strap (2 used)
L-Rivet (10 used)

M-Square nut (2 used)
N-Sheet metal plate
O-Retaining plate (2 used)
P-Seal strip for air filter
Q-Gasket for air filter
R-Seal strip for air filter
S-Rivet (26 used)

L108061-LB29025AE-010886

CAB INNER ROOF (WITH HATCH), EXPLODED VIEW



L 108 062

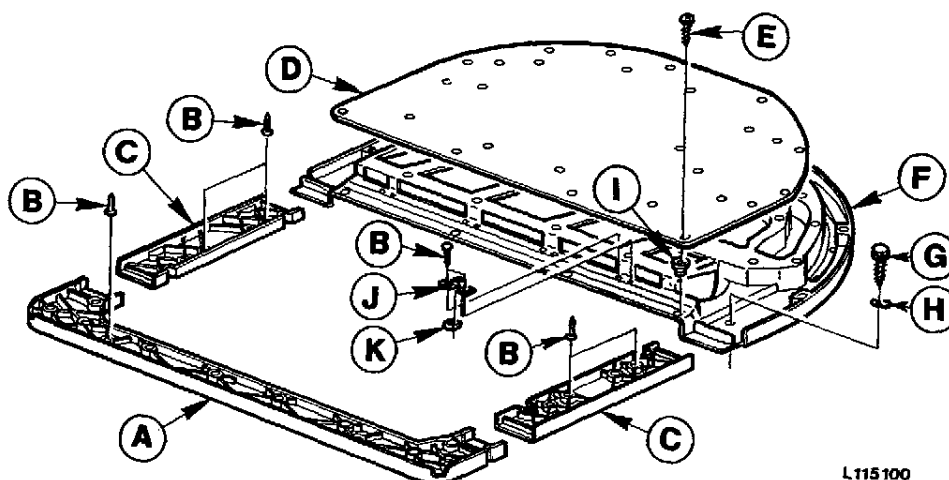
A-Phillips screw (2 used)
B-Cover
C-Phillips screw (14 used)
D-Gasket
E-Spacer
F-Rubber boot

G-Cab inner roof
H-Seal strip
I-Spring clip (4 used)
J-Rivet (20 used)
K-Support (2 used)
L-Sheet metal nut

M-Countersunk screw (2 used)
N-Square nut (4 used)
O-Securing strap (4 used)
P-Seal strip
Q-Dust collector
R-Rivet (26 used)
S-Special nut (4 used)

L108062-LB29025AE-010886

CAB INNER ROOF (LOW PROFILE CAB), EXPLODED VIEW



A-Rear headliner
B-Rivet (10 used)
C-Side headliner
D-Cover

E-Phillips screw (30 used)
F-Cab inner roof
G-Cap screw (12 used)
H-Lock washer (12 used)

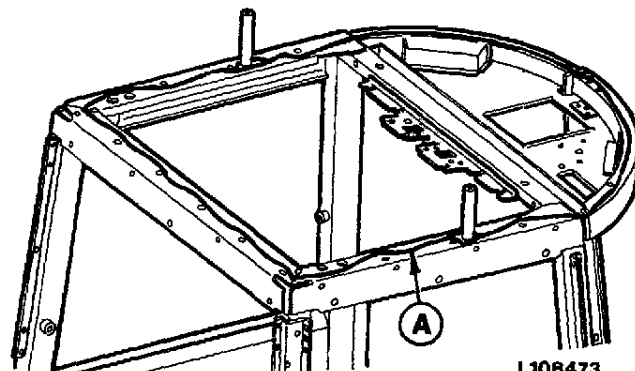
I-Special nut (30 used)
J-Lock strap (4 used)
K-Square nut (4 used)

L115100-LB29025AE-000886

INSTALLING CAB INNER ROOF

Thoroughly clean mounting surface and coat with fresh sealant (A) L41074.

Rivet frame to cab inner roof.

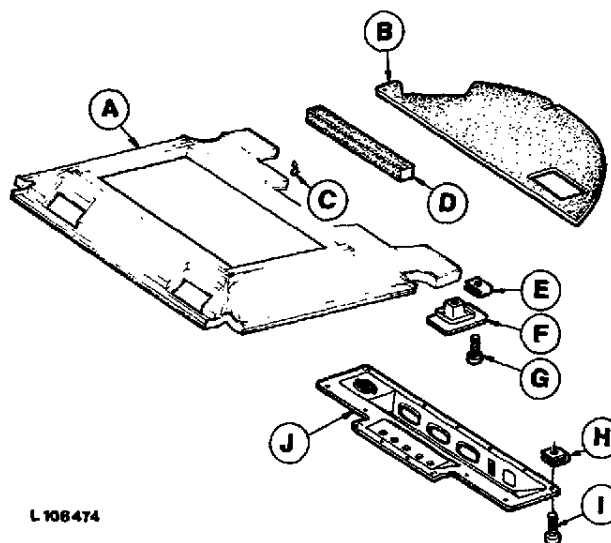


L108473
L108473-LA79020AE-091184

CAB HEADLINER, EXPLODED VIEW

- A-Rear headliner
- B-Front headliner
- C-Pin (8 used)
- D-Seal strip
- E-Spring clip (4 used)
- F-Cab interior light
- G-Self-tapping screw (2 used)
- H-Spring clip (14 used)
- I-Self-tapping screw (14 used)
- J-Panel with air louvers

NOTE: If required, adhere lining material with adhesive AL38623.



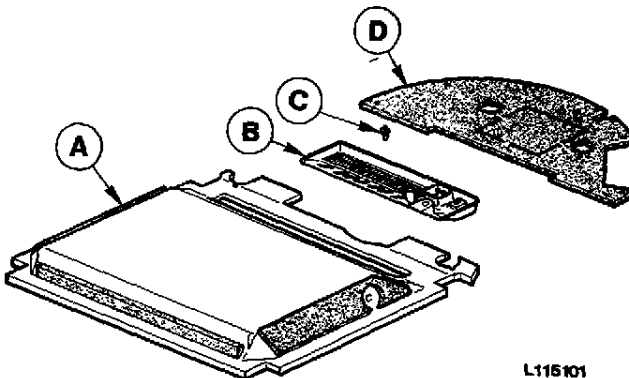
L 108474

L108474-LA79020AE-091184

Low Profile Cab

- A-Rear headliner
- B-Headliner with cab interior light
- C-Pin (8 used)
- D-Front headliner

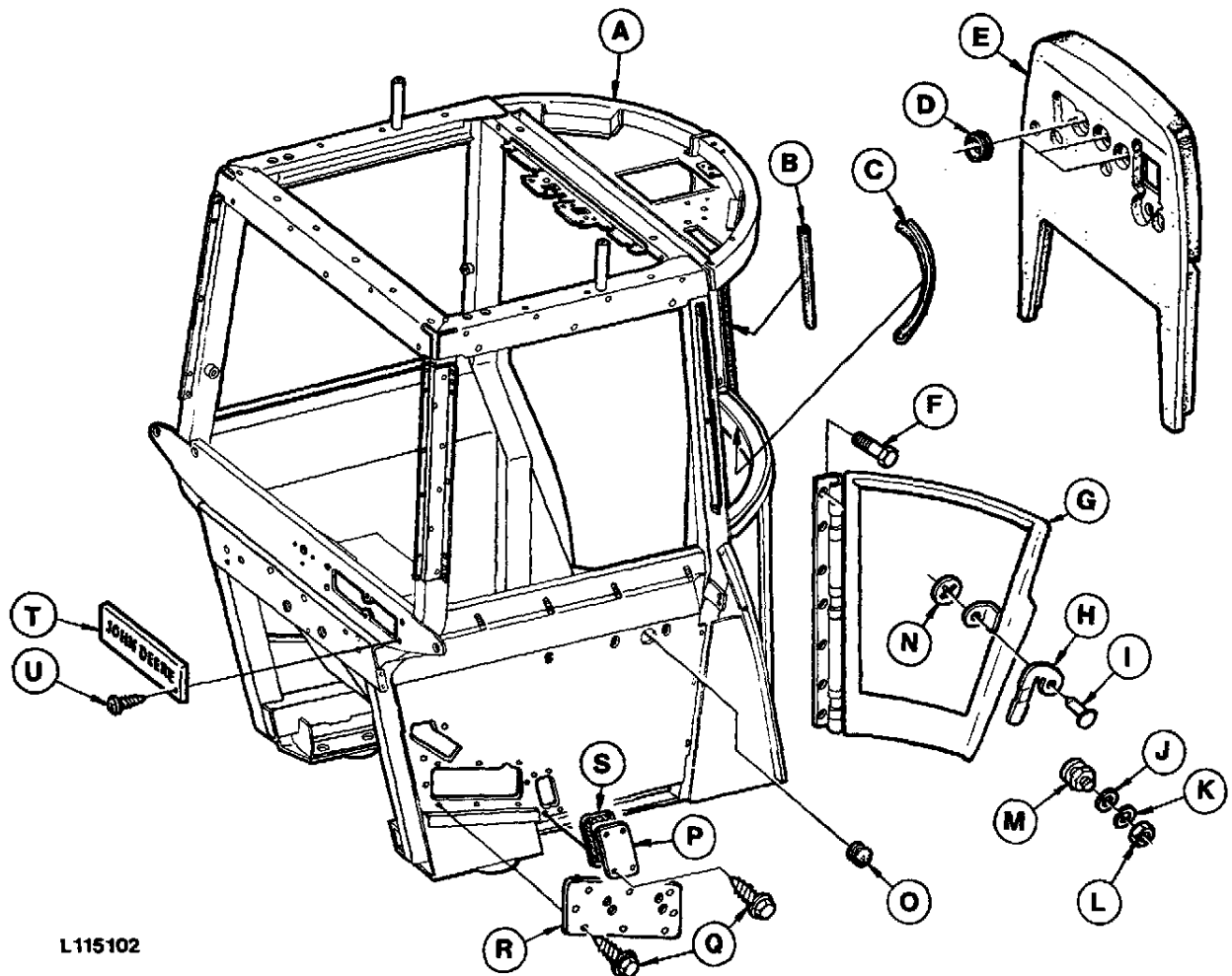
NOTE: If required, adhere lining material with adhesive AL38623.



L115101

L115101-LB29025AE-010886

CAB FRAME, EXPLODED VIEW



L115102

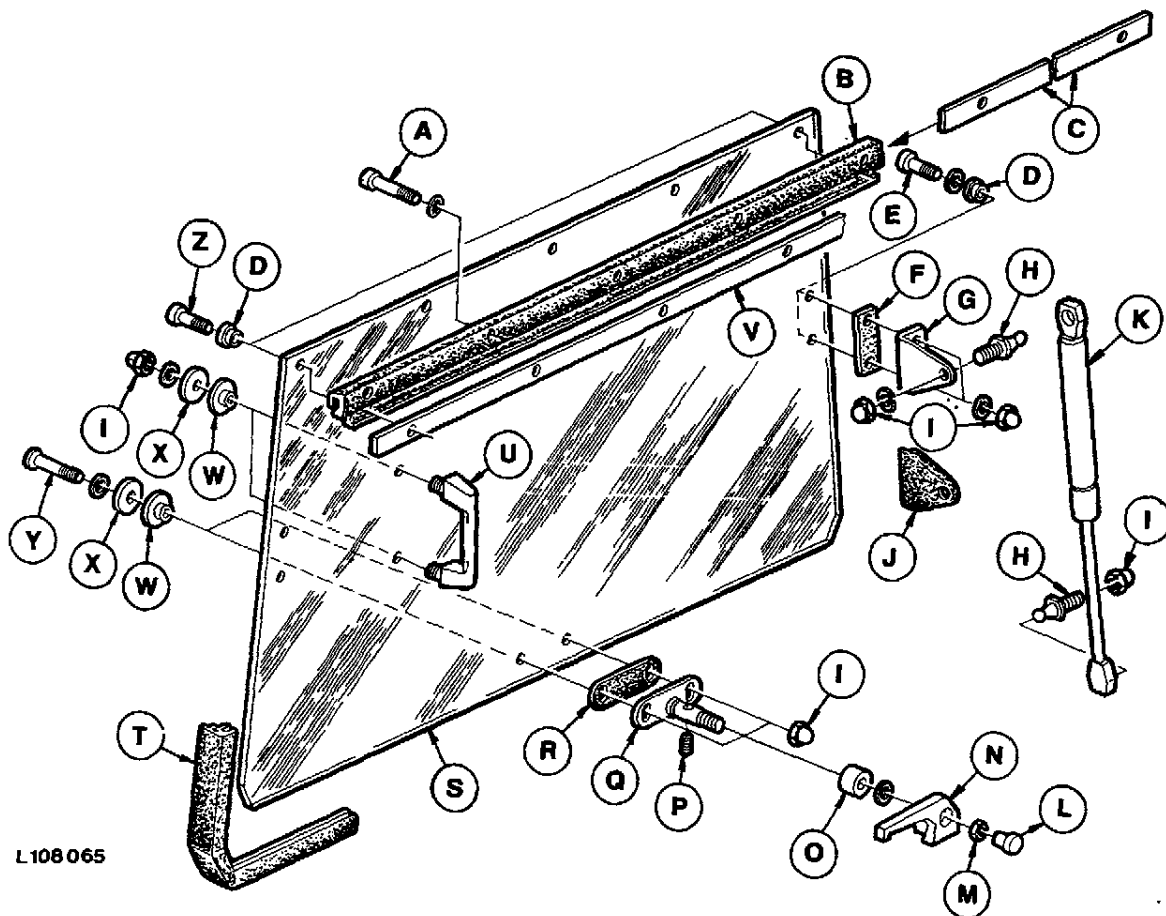
A-Cab frame
B-Edge protector
C-Rubber seal
D-Rubber boot (3 used)
E-Insulating mat
F-Cap screw (7 used)
G-Service door

H-Locking lever
I-Rivet
J-Washer
K-Snap ring
L-Hex. nut
M-Locking pin
N-Clamping washer

O-Plug
P-Cover
Q-Self-tapping screw (12 used)
R-Cover
S-Gasket
T-Cover
U-Self-tapping screw

L115102-LB29025AE-010886

REAR WINDOW, EXPLODED VIEW (Up To Tractor Serial No. 627 805L)



L108 065

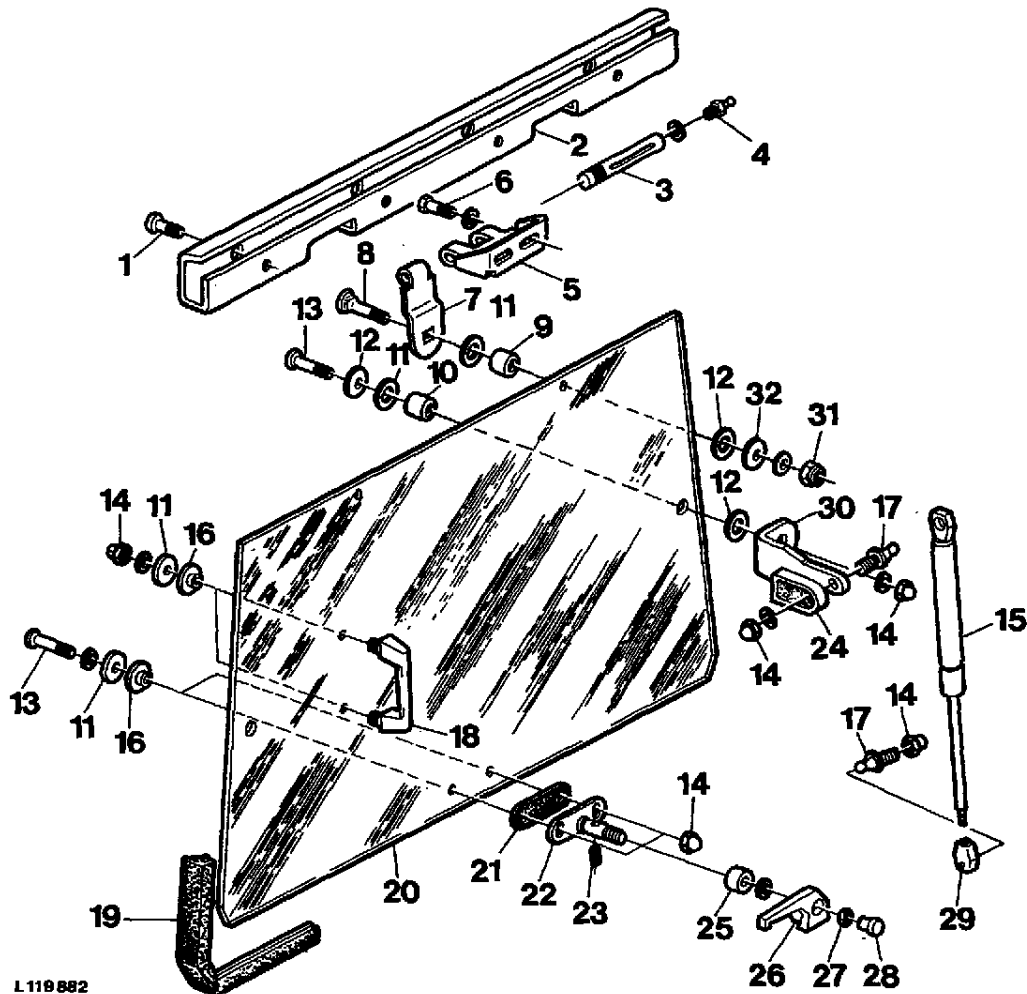
A-Phillips screw (5 used)
B-Profile strip
C-Strip
D-Bushing (9 used)
E-Phillips screw (4 used)
F-Rubber seal (2 used)
G-Bracket (2 used)
H-Ball head (4 used)
I-Cap nut (12 used)

J-Plastic lining (2 used)
K-Gas cylinder (2 used)
L-Plug
M-Hex. nut
N-Hand grip
O-Seal ring
P-Adjustment screw
Q-Bracket
R-Rubber seal

S-Glass pane
T-Rubber seal
U-Hand grip
V-Strip
W-Bushing (4 used)
X-Washer (4 used)
Y-Phillips screw (2 used)
Z-Phillips screw (5 used)

L108065-LB29025AE-010488

REAR WINDOW, EXPLODED VIEW (From Tractor Serial No. 627 806L)



L 119882

- 1-Phillips screw (4 used)
- 2-Profile strip
- 3-Hinge pin (2 used)
- 4-Lube fitting (2 used)
- 5-Hinge half (2 used)
- 6-Cap screw (4 used)
- 7-Hinge half (2 used)
- 8-Flat round-headed screw (2 used)
- 9-Bushing (2 used)
- 10-Bushing (2 used)
- 11-Washer (6 used)

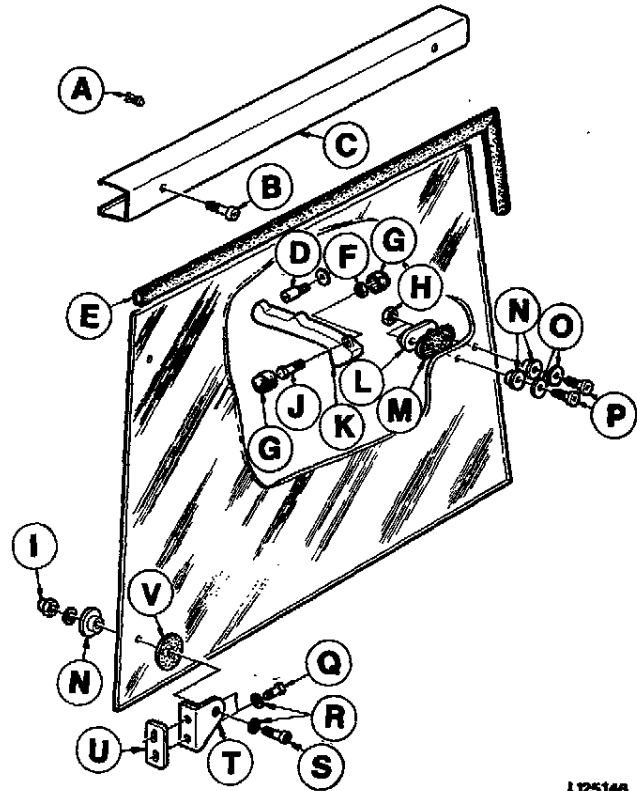
- 12-Washer (6 used)
- 13-Fillister headed screw (8 used)
- 14-Cap nut (10 used)
- 15-Gas cylinder (2 used)
- 16-Bushing (4 used)
- 17-Ball head (4 used)
- 18-Hand grip
- 19-Rubber seal
- 20-Glass pane
- 21-Rubber seal
- 22-Bracket

- 23-Adjustment screw
- 24-Plastic cover (2 used)
- 25-Seal ring
- 26-Hand grip
- 27-Hex. nut
- 28-Plug
- 29-Ball (2 used)
- 30-Bracket (2 used)
- 31-Hex. nut (2 used)
- 32-Washer (2 used)

L 119882-LB29025AE-010488

SIDE WINDOW, EXPLODED VIEW

- A-Rivet (4 used)
- B-Phillips screw (4 used)
- C-Strip
- D-Stud
- E-Rubber seal
- F-Hex. nut
- G-Protective cap (2 used)
- H-Hex. nut (2 used)
- I-Cap nut (4 used)
- J-Cap screw
- K-Adjustment strap
- L-Bracket
- M-Rubber seal
- N-Bushings
- O-Washers
- P-Phillips screw (2 used)
- Q-Cap screw (4 used)
- R-Washer (4 used)
- S-Phillips screw (2 used)
- T-Hinge
- U-Spacer plate
- V-Rubber gasket (2 used)



L125146

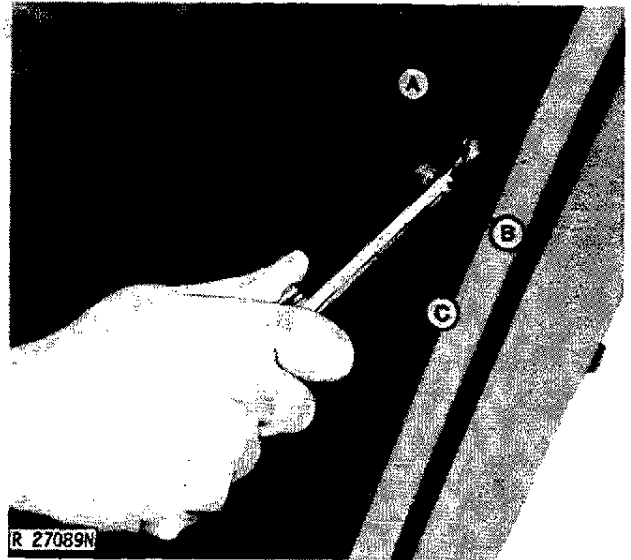
L125146-LB39030AE-010888

REMOVING CAB WINDOWS

Insert special tool JDST-29 (C) into seam of profile rubber and press out inner seal lip (B).

Position roller (A) of special tool laterally onto seal and move tool up or down to separate profile rubber from seal lips.

Push window pane inwards and simultaneously press out of rubber profile at one corner.



R27089N-LA79020AE-091184

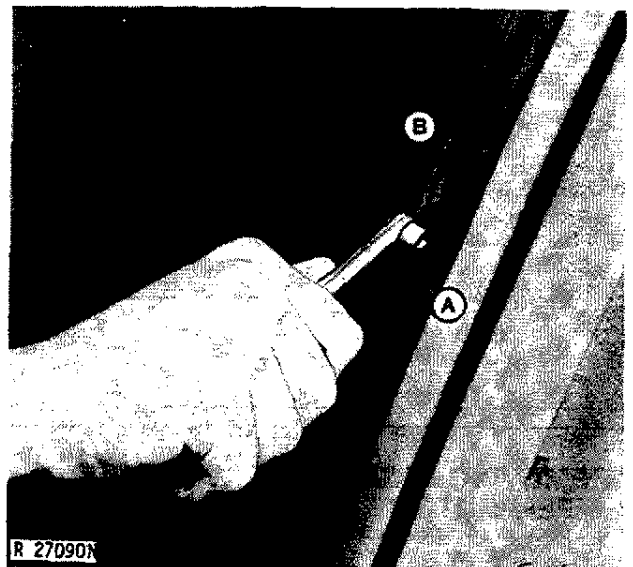
INSTALLING CAB WINDOWS

Install new seals, using sealant AL39465.

Lubricate rubber profile with liquid soap to facilitate inserting the window pane.

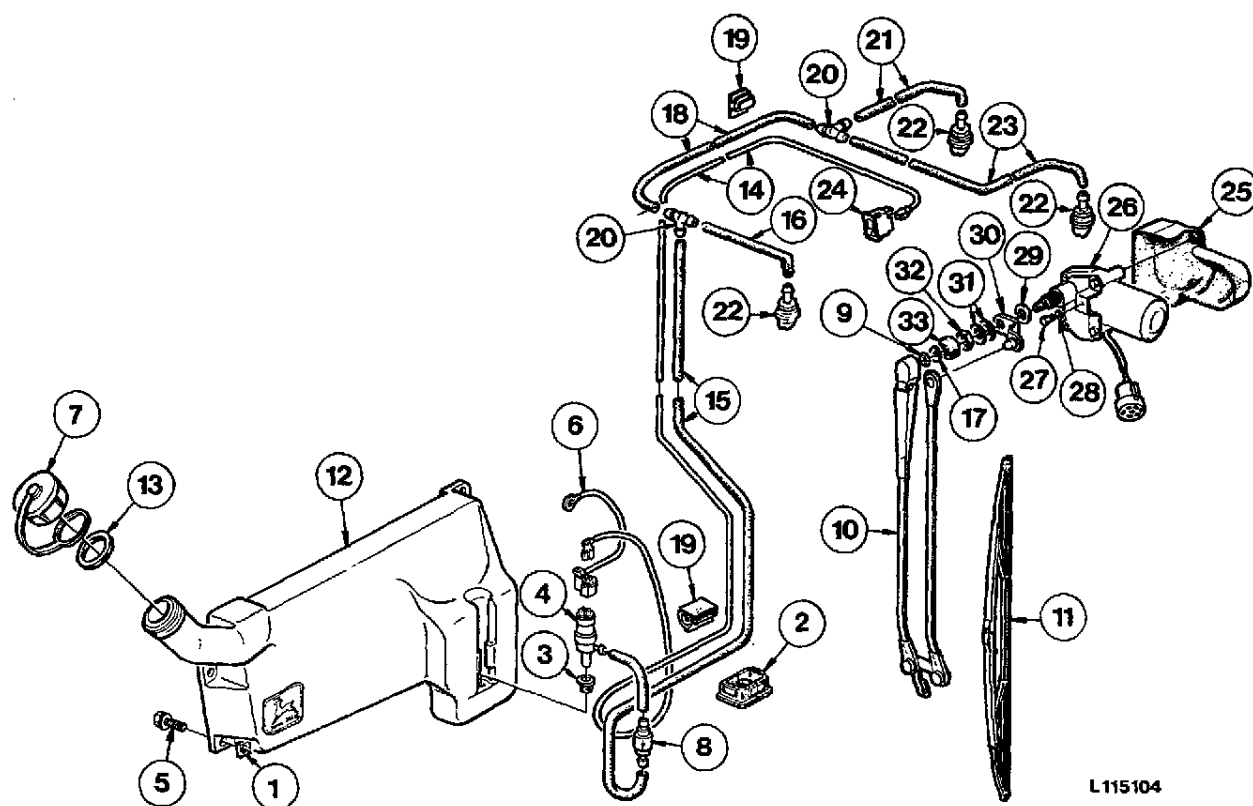
Use special tool JDST-29 to join seal lips (B) of rubber profile.

Insert prong of tool into seam with roller (A) on side of seam away from the glass.



R27090N-LA79020AE-001184

WINDSHIELD WIPER AND WINDSHIELD WASHER ASSEMBLY, EXPLODED VIEW



L115104

- 1-Square nut (4 used)
- 2-Seal
- 3-Rubber boot
- 4-Pump
- 5-Self-tapping screw (4 used)
- 6-Ground cable with plug
- 7-Filter neck cap
- 8-Check valve
- 9-Hex. nut

- 10-Wiper arm
- 11-Wiper blade
- 12-Reservoir
- 13-Seal ring
- 14-Cable
- 15-Hose
- 16-Hose
- 17-Washer
- 18-Hose

- 19-Bracket
- 20-T-piece
- 21-Hose
- 22-Spray jets
- 23-Hose
- 24-Tumbler switch
- 25-Electric motor cover
- 26-Electric motor

- 27-Cap screw
- 28-Washer
- 29-Special washer
- 30-Wiper connecting arm
- 31-Washers
- 32-Hex. nut
- 33-Protective cap

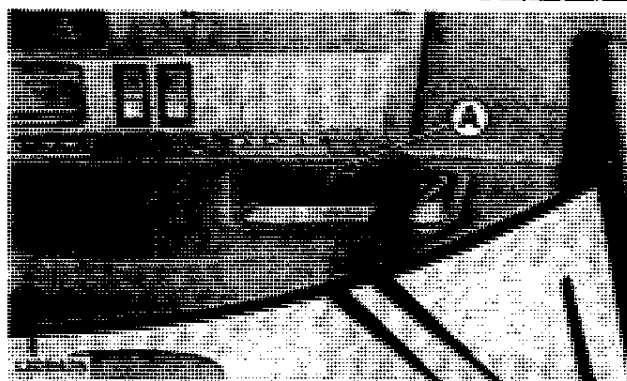
L115104-LB29025AE-010886

REMOVING RIGHT-HAND WINDSHIELD WIPER MOTOR

Remove hex. nuts and two cap screws on outside of cab.

Remove cab interior light and pull out wiper motor (A) through opening.

Disconnect wiring harness.



L108475-LA79020AE-091184

With Low Profile Cab

Remove hex. nuts and two cap screws on outside of cab.

Remove cab roof and cover of heater radiator.

Remove windshield wiper motor (A).

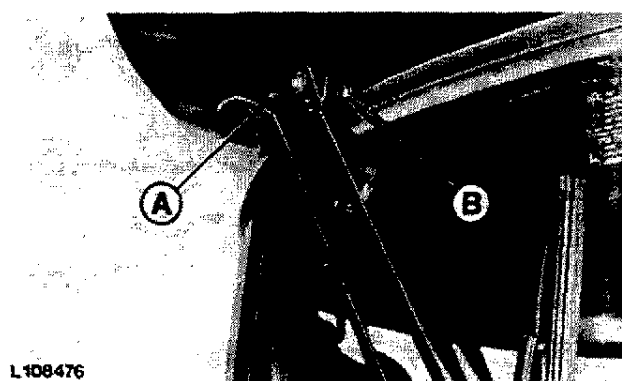


L115105-LB29025AE-010886

REMOVING LEFT-HAND WINDSHIELD WIPER MOTOR

Disconnect wiring harness.

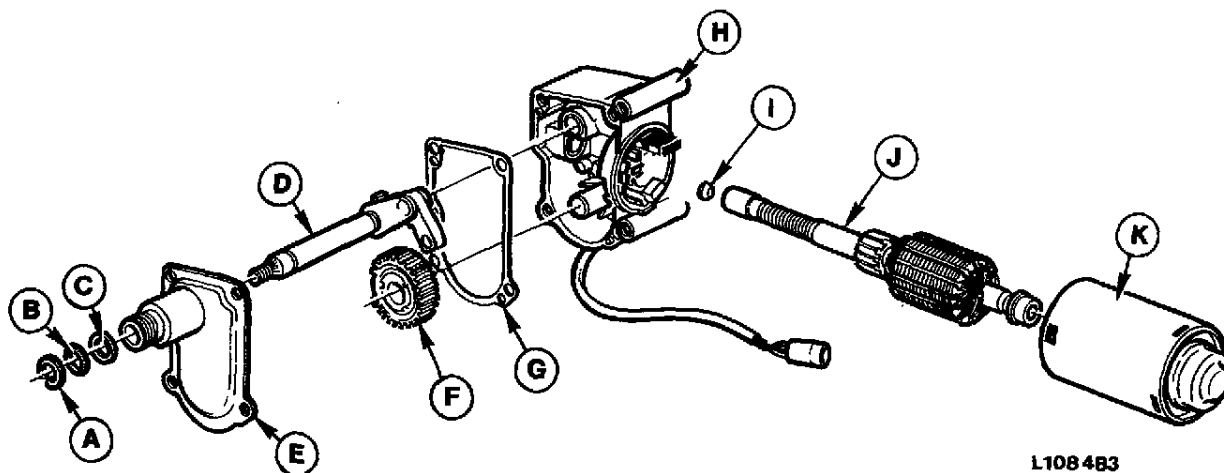
Remove hex. nut (A) and cap screw (B).



L108476

L108476-LA79020AE-091184

WINDSHIELD WIPER MOTOR, EXPLODED VIEW



L108483

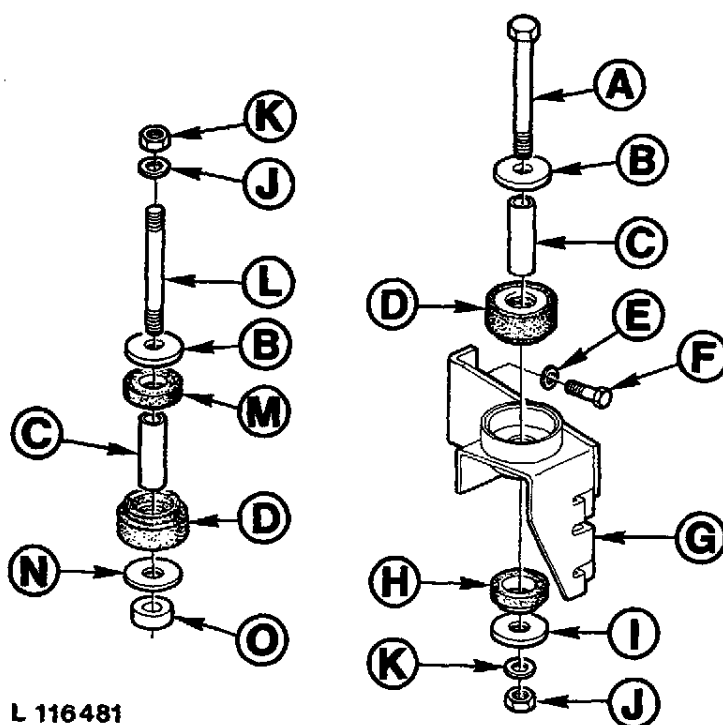
A-Snap ring
B-O-ring
C-Washer
D-Transmission gear

E-Motor plate
F-Gear
G-Gasket
H-Gear housing

I-Mushroom stop
J-Armature
K-Housing

L108483-LA79020AE-091184

CAB MOUNTING BRACKETS, EXPLODED VIEW



L 116481

A—Cap screw (2 used)
 B—Washer
 C—Spacer
 D—Mounting pad
 E—Washer (2 used)

F—Cap screw (2 used)
 G—Mounting bracket
 H—Rubber pad
 I—Washer
 J—Hex. nut

K—Washer
 L—Stud
 M—Rubber pad
 N—Washer
 O—Bushing

L116481-L639030AE-010287

REMOVING AND INSTALLING CAB MOUNTINGS

When installing front mountings, make sure that cab mounting holes are aligned with holes in the cab.

Before installing a new stud in final drive housing, coat longer thread of stud bolt with LOCTITE

No. 242 (T43512). Tighten stud with 35 Nm (25 ft-lb).

Tighten hex. nuts of the four attaching screws with 200 Nm (145 ft-lb).

SG2KAB-LA79020CE-001184

TORQUES FOR HARDWARE

Cab to mounting brackets, cap screws 245 Nm (180 ft-lb)

MC1KAB-LB39035AE-010287

REMOVING MC1 CAB

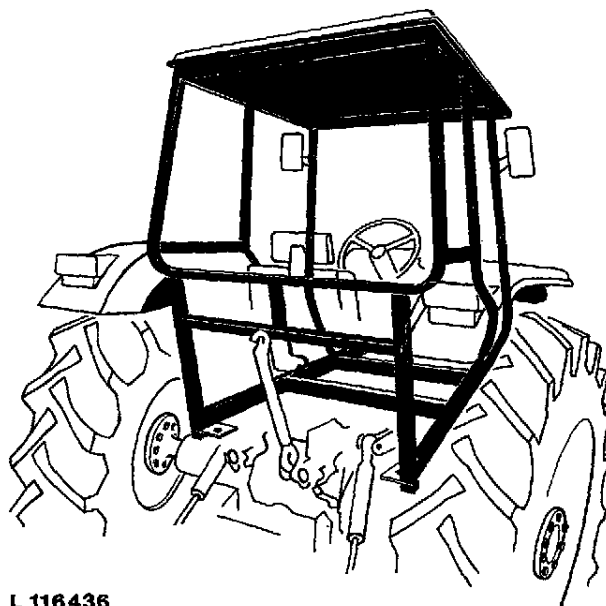
For removal of MC1 cab, see Section 10, Group 25.



CAUTION: If the cab mounting bolts are loosened or if the cab is removed for any reason, ensure that all parts are reinstalled correctly to maintain roll-over protection. Tighten mounting bolts to correct torque.

A tractor roll-over may place a very severe strain on the cab structure. The cab must therefore be replaced if structural members are bent, buckled or stretched.

When making repairs to the cab structure, apart from welding on new door hinges, no welding, grinding, drilling or cutting of any kind should be done on the cab frame. Doing so may weaken the frame members sufficiently to limit their effectiveness in protecting the operator if a roll-over or upset should occur.



L 116436

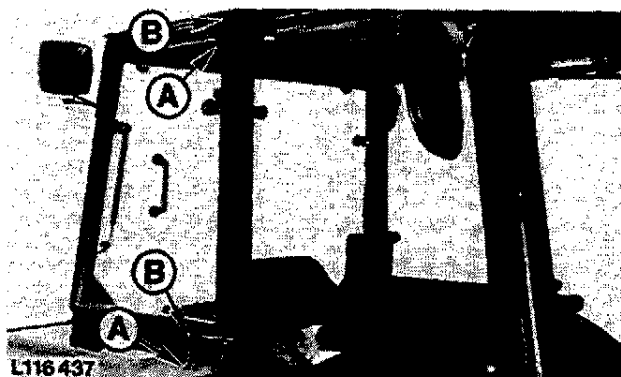
L116436-LB39035AE-010287

REMOVING CAB DOOR

Disconnect gas pressure cylinder.

Remove both grease fittings (A).

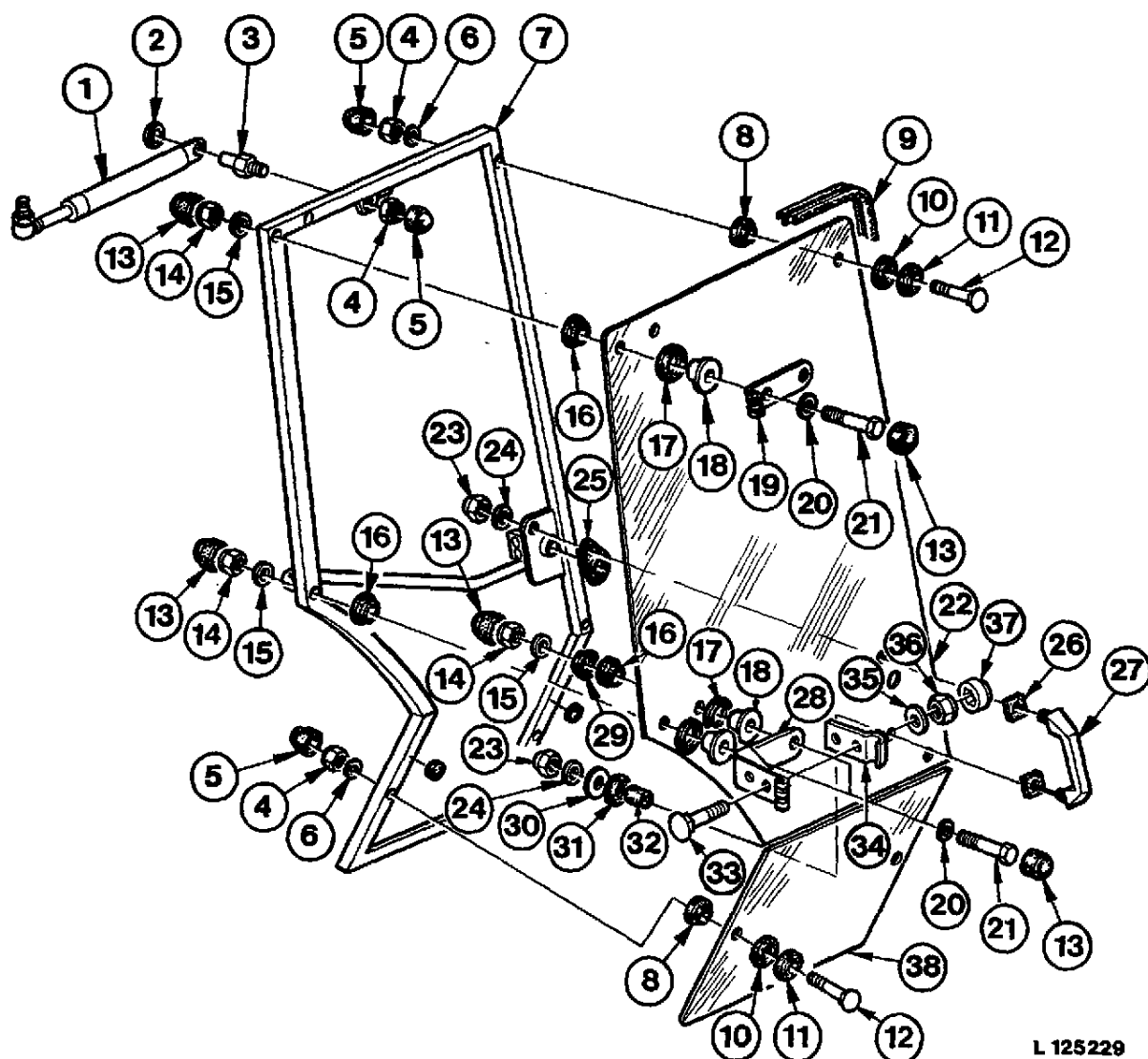
Drive out hinge pins (B) upwards.



L116437

L116437-LB39035AE-010287

CAB DOOR, EXPLODED VIEW



L 125229

1-Gas pressure cylinder

2-Snap ring

3-Pin

4-Hex. nut (5 used)

5-Cap (5 used)

6-Washer (4 used)

7-Door frame

8-Bushing (4 used)

9-Rubber seal

10-Gasket (4 used)

11-Back-up washer (4 used)

12-Flat round-headed screw (4 used)

13-Cap (5 used)

14-Hex. nut (3 used)

15-Washer (3 used)

16-Bushing (2 used)

17-Sealing washer (3 used)

18-Bushing (3 used)

19-Hinge half

20-Washer (3 used)

21-Cap screw (2 used)

22-Glass pane

23-Cap nut (2 used)

24-Washer (2 used)

25-Gasket

26-Gasket (2 used)

27-Door handle

28-Hinge half

29-Sealing washer

30-Washer

31-Sealing washer

32-Bushing

33-Flat round-headed screw (2 used)*

34-Stop*

35-Washer (2 used)*

36-Nut (2 used)*

37-Cap (2 used)*

38-Glass pane

* From Tractor Serial No. 632 050L

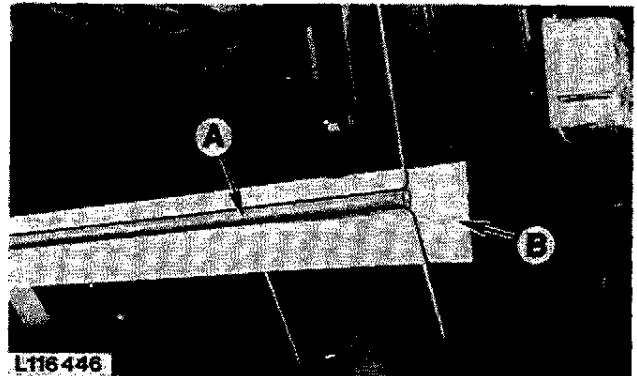
L125229-LB39035AE-010888

SEALING CAB DOOR

Remove door sealing rubber.

Seal gap between upper and lower windows of door with TEROSTAT 55 (L57914) sealant (A).

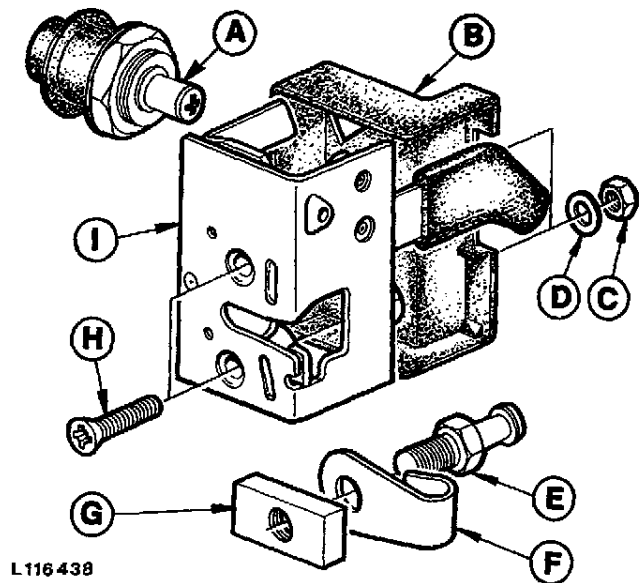
To facilitate application of the sealant, place a strip of adhesive tape (B) along gap on inside of door.



L116446-LB39035AE-010287

DOOR LOCK, EXPLODED VIEW

- A—Lock cylinder
- B—Door lock cover
- C—Hex. nut (2 used)
- D—Washer (2 used)
- E—Door lock pin
- F—Shield
- G—Spacer
- H—Phillips screw (2 used)
- I—Door lock

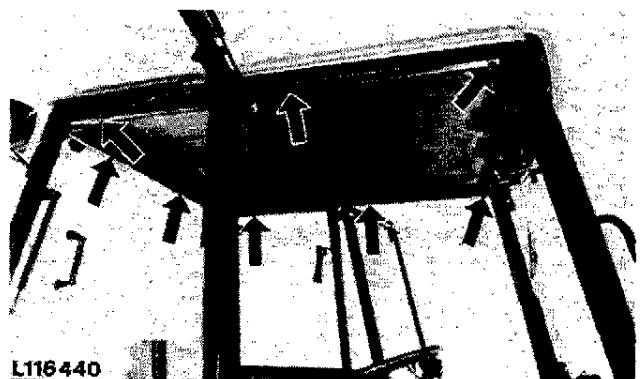


L116438-LB39035AE-010287

REMOVING CAB ROOF

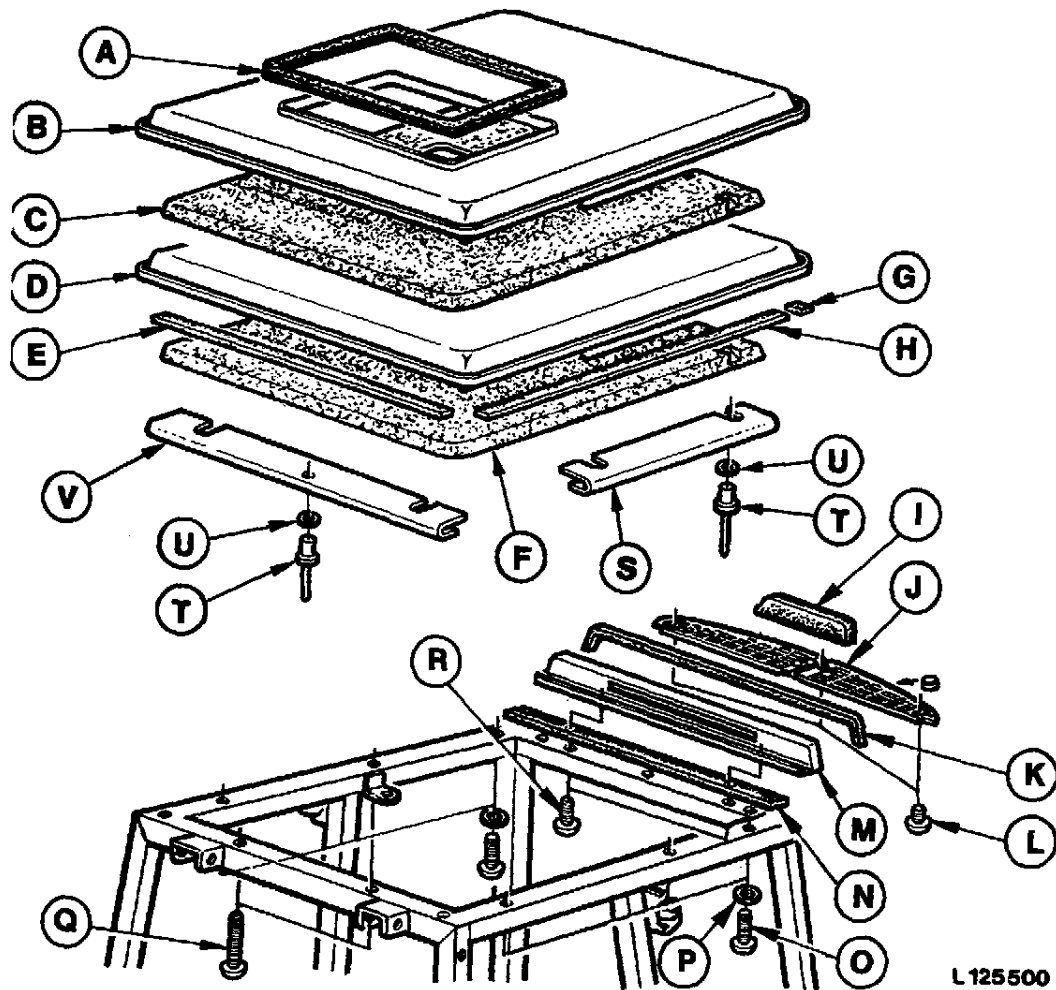
Remove the eight Phillips screws (see arrows).

On tractors with fan in cab roof, remove fan housing (see "Removing Fan from Cab Roof" in Section 90, Group 20).



L116440-LB39035AE-010287

CAB ROOF, EXPLODED VIEW



L 125 500

A-Edge surround*
 B-Cab roof*
 C-Headliner*
 D-Cab roof
 E-Sealing strip
 F-Headliner
 G-Sealing pad (2 used)
 H-Sealing strip (2 used)

I-Headliner**
 J-Roof tower
 K-Sealing strip
 L-Phillips screw (2 used)
 M-Panelling
 N-Sealing strip
 O-Phillips screw (6 used)

P-Washer (6 used)
 Q-Phillips screw (2 used)
 R-Phillips screw (2 used)
 S-Clamping strip (2 used)
 T-Rivet (3 used)
 U-Washer (3 used)
 V-Clamping strip

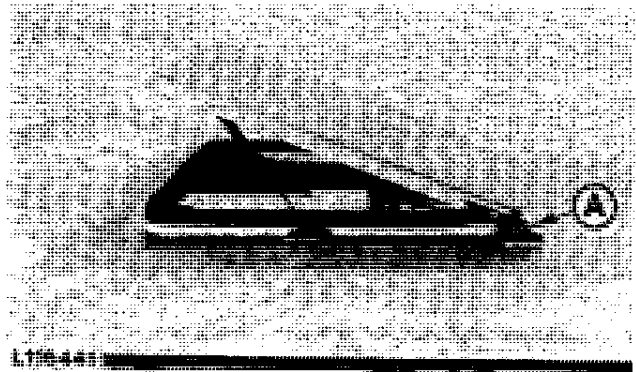
* With hatch in cab roof

** With fan in cab roof

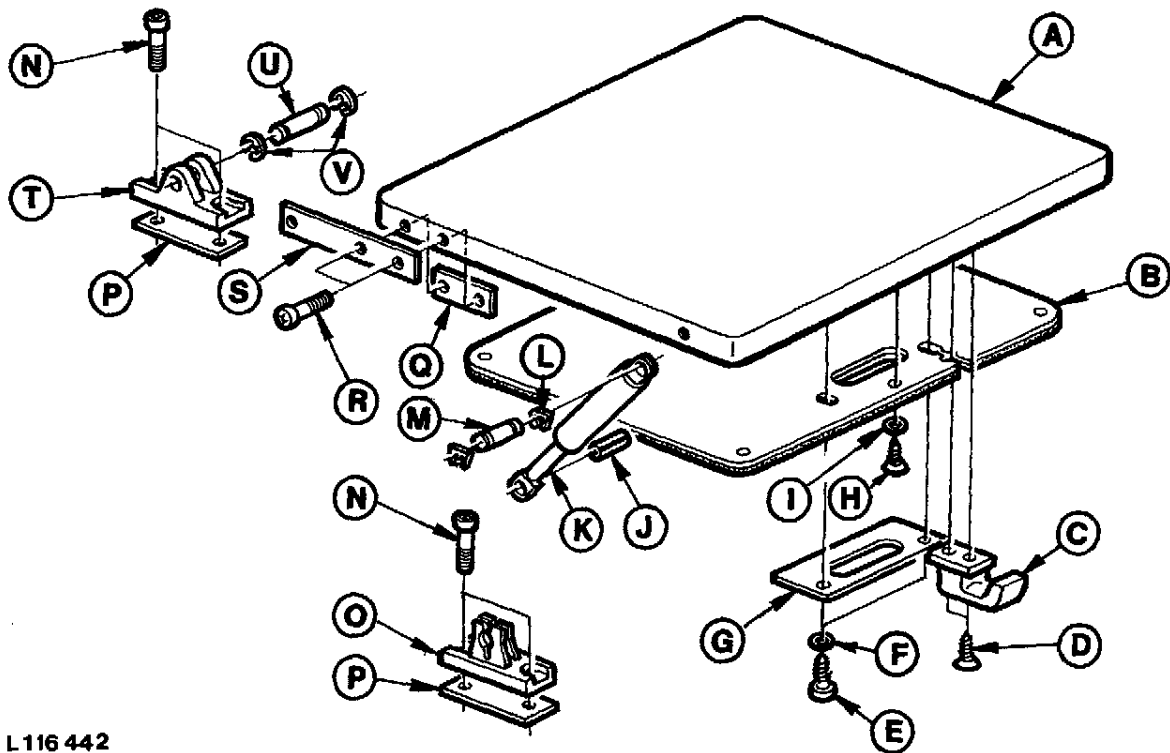
L125500-LB39035AE-010888

REMOVING HATCH

Disconnect gas pressure cylinder.
Remove snap ring (A) and pull out pin.



L116441-LB39035AE-010287

HATCH, EXPLODED VIEW

L 116 442

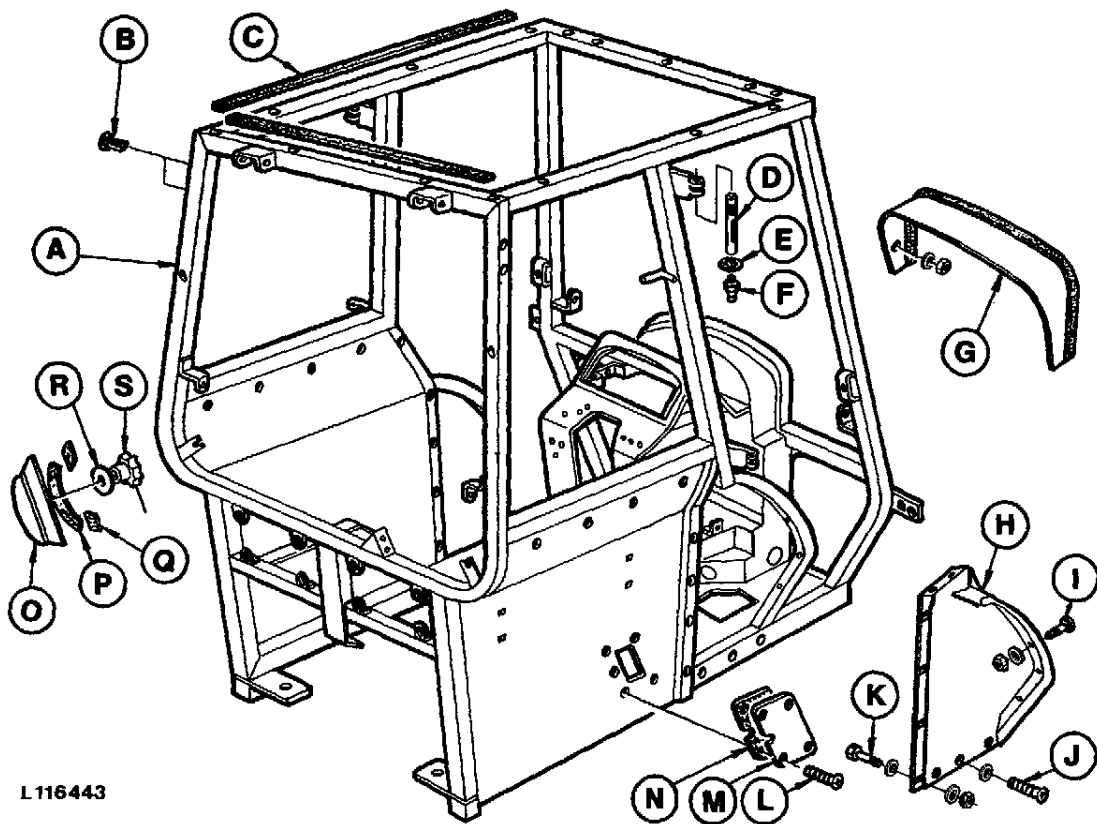
A-Hatch panel
B-Headliner
C-Latch
D-Phillips screw (2 used)
E-Phillips screw (2 used)
F-Washer (2 used)
G-Handle
H-Phillips screw (8 used)

I-Washer (8 used)
J-Spring pin (2 used)
K-Gas pressure cylinder (2 used)
L-Snap ring (4 used)
M-Pin (2 used)
N-Allen screw (8 used)
O-Pivot plate (2 used)
P-Threaded plate (4 used)

Q-Backing plate (2 used)
R-Phillips screw (4 used)
S-Link plate (2 used)
T-Pivot plate (2 used)
U-Pin (2 used)
V-Snap ring (4 used)

L116442-LB39035AE-010287

CAB FRAME, EXPLODED VIEW



L116443

A-Cab frame
B-Rivet (8 used)
C-Sealing strip (4 used)
D-Hinge pin (4 used)
E-Washer (4 used)
F-Grease fitting (4 used)

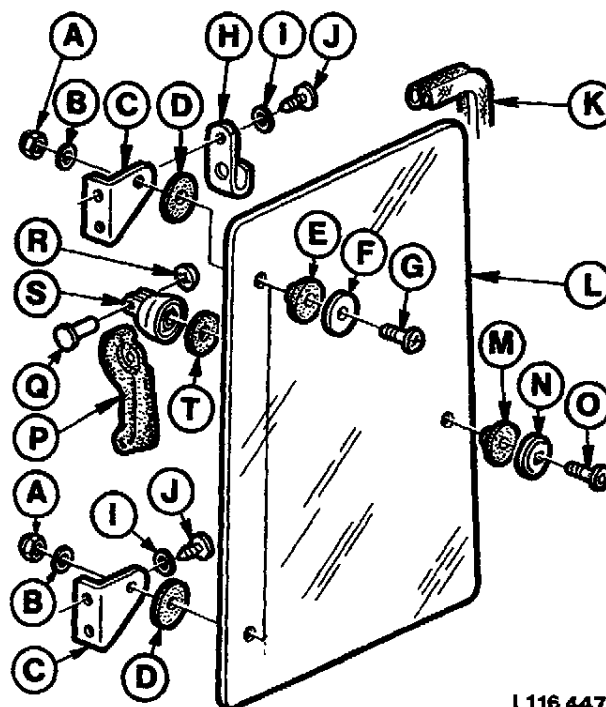
G-Dash surround
H-Panelling (2 used)
I-Cap screw (8 used)
J-Self-tapping screw (6 used)
K-Cap screw (10 used)
L-Self-tapping screw (4 used)

M-Cover
N-Gasket
O-Cover (2 used)
P-Gasket (2 used)
Q-Gasket (4 used)
R-Washer (2 used)
S-Window knob (2 used)

L116443-LB39035AE-010287

SIDE WINDOW, EXPLODED VIEW

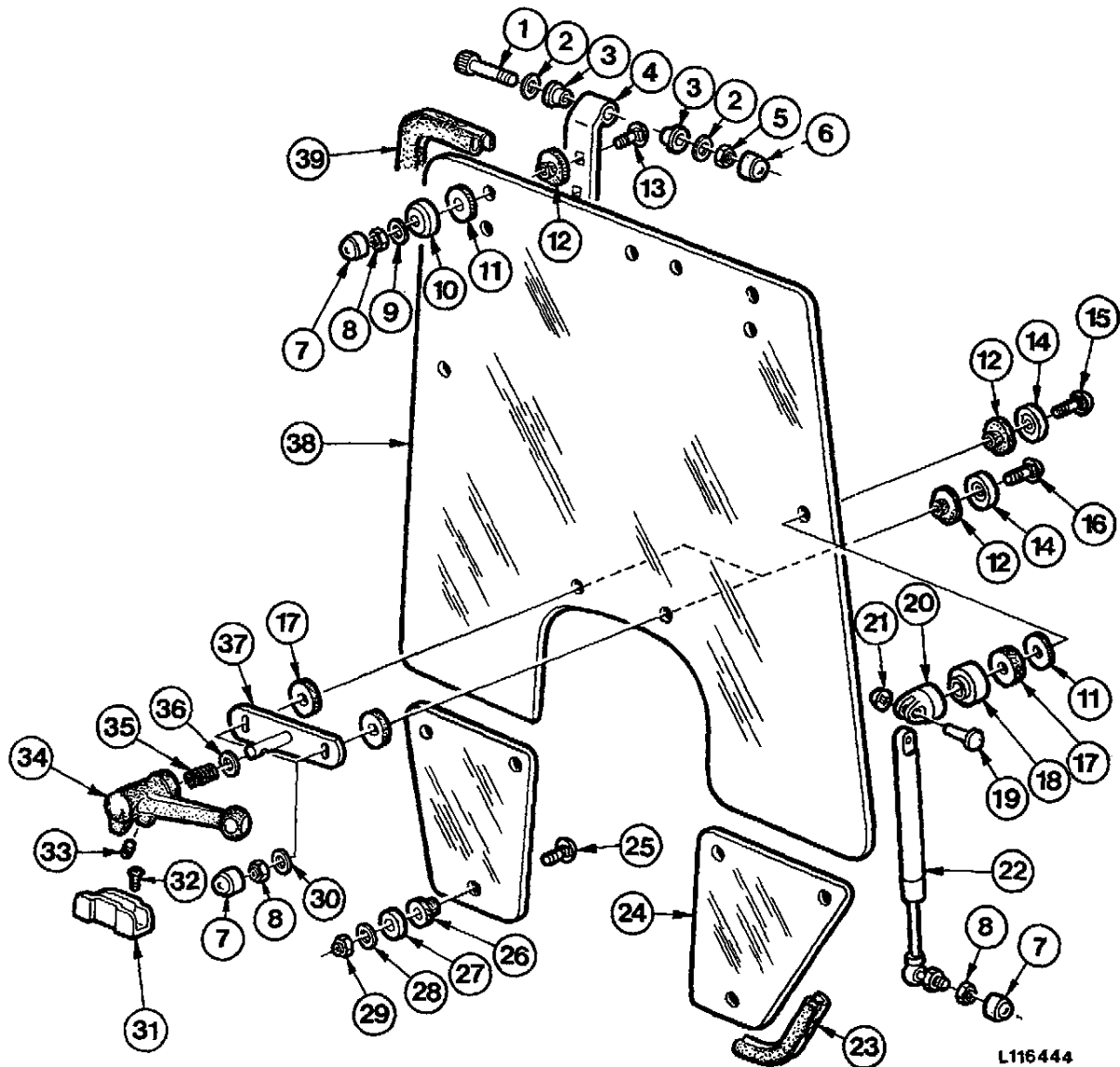
- A—Cap nut (2 used)
- B—Washer (2 used)
- C—Angle bracket (2 used)
- D—Sealing washer (2 used)
- E—Bushing (2 used)
- F—Back-up washer (2 used)
- G—Phillips screw (2 used)
- H—Hook
- I—Washer (4 used)
- J—Phillips screw (4 used)
- K—Rubber seal
- L—Glass pane
- M—Bushing
- N—Back-up washer
- O—Allen screw
- P—Handle
- Q—Pin
- R—Snap ring
- S—Pivot plate
- T—Sealing washer



L116 447

L116447-LB39035AE-010287

WINDSHIELD, EXPLODED VIEW



L116444

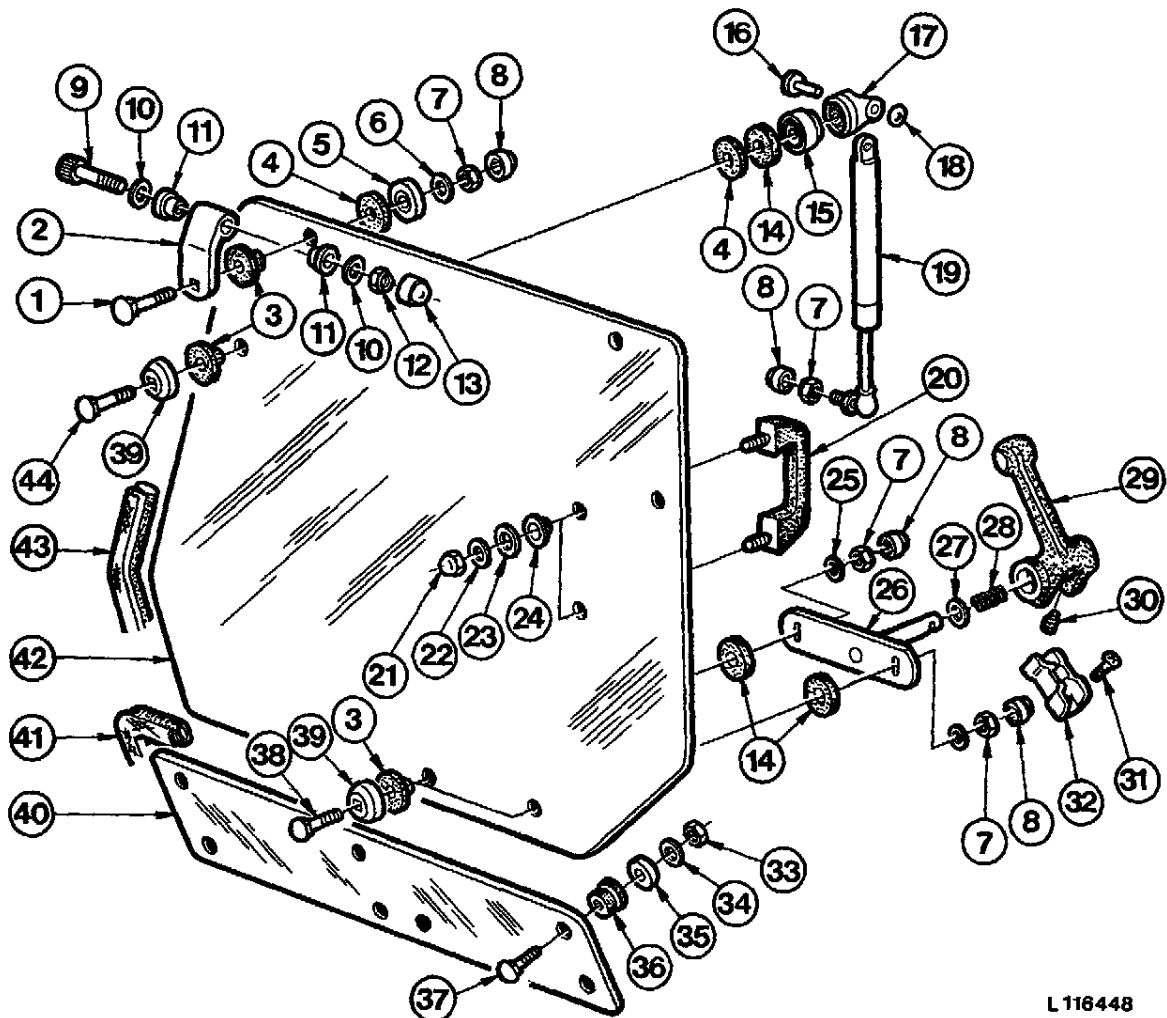
- 1-Allen screw (2 used)
- 2-Washer (4 used)
- 3-Bushing (4 used)
- 4-Hinge half (2 used)
- 5-Hex. nut (2 used)
- 6-Cap (2 used)
- 7-Cap (8 used)
- 8-Hex. nut (8 used)
- 9-Washer (4 used)
- 10-Back-up washer (4 used)
- 11-Sealing washer (6 used)
- 12-Bushing (8 used)
- 13-Flat round-headed screw (4 used)

- 14-Back-up washer (4 used)
- 15-Flat round-headed screw (2 used)
- 16-Flat round-headed screw (2 used)
- 17-Shim (2 used)
- 18-Spacer (4 used)
- 19-Pin (2 used)
- 20-Pivot plate (2 used)
- 21-Snap ring (2 used)
- 22-Gas pressure cylinder (2 used)
- 23-Rubber seal (2 used)
- 24-Glass pane (2 used)
- 25-Flat round-headed screw (6 used)
- 26-Bushing (6 used)

- 27-Sealing washer (6 used)
- 28-Washer (6 used)
- 29-Hex. nut (6 used)
- 30-Washer (2 used)
- 31-Latch
- 32-Countersunk screw (2 used)
- 33-Grub screw
- 34-Handle
- 35-Spring
- 36-Washer
- 37-Bracket
- 38-Glass pane
- 39-Rubber seal

L116444-LB39035AE-010287

REAR WINDOW, EXPLODED VIEW



L 116448

1-Flat round-headed screw
(2 used)
2-Hinge half (2 used)
3-Bushing (6 used)
4-Sealing washer (4 used)
5-Back-up washer (2 used)
6-Washer (2 used)
7-Hex. nut (6 used)
8-Cap (6 used)
9-Allen screw (2 used)
10-Washer (4 used)
11-Bushing (4 used)
12-Hex. nut (2 used)

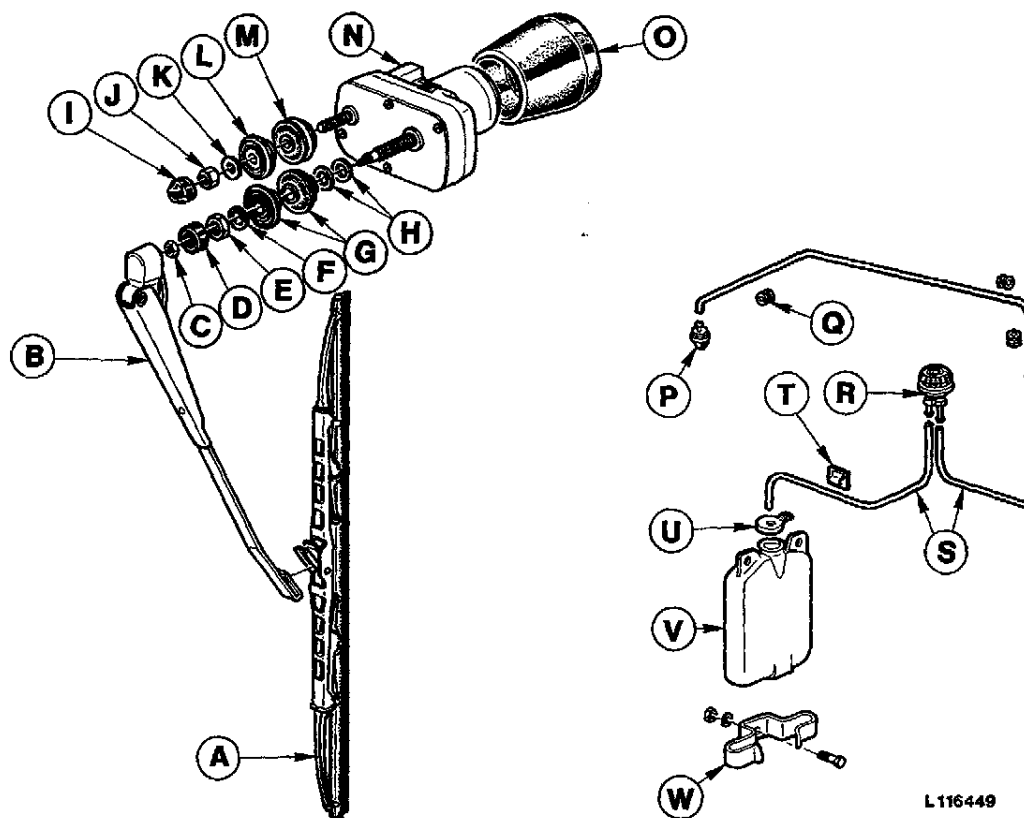
13-Cap (2 used)
14-Shim (4 used)
15-Spacer (2 used)
16-Pin (2 used)
17-Pivot plate (2 used)
18-Snap ring (2 used)
19-Gas pressure cylinder
(2 used)
20-Handle
21-Cap nut (2 used)
22-Washer (2 used)
23-Washer (2 used)

24-Bushing (2 used)
25-Washer (2 used)
26-Bracket
27-Washer
28-Spring
29-Handle
30-Grub screw
31-Countersunk screw
(2 used)
32-Latch
33-Hex. nut (6 used)
34-Washer (6 used)

35-Sealing washer (6 used)
36-Bushing (6 used)
37-Flat round-headed screw
(6 used)
38-Flat round-headed screw
(2 used)
39-Back-up washer (4 used)
40-Glass pane
41-Rubber seal
42-Glass pane
43-Rubber seal
44-Flat round-headed screw
(2 used)

L116448-LB39035AE-010287

WINDSHIELD WIPER AND WINDSHIELD WASHER ASSEMBLY, EXPLODED VIEW



A—Wiper blade
B—Wiper arm
C—Hex. nut
D—Bushing
E—Hex. nut
F—Toothed washer
G—Special washer (2 used)
H—Washer (2 used)

I—Cap
J—Hex. nut
K—Washer
L—Special washer
M—Special washer
N—Electric motor
O—Electric motor cover
P—Spray jet

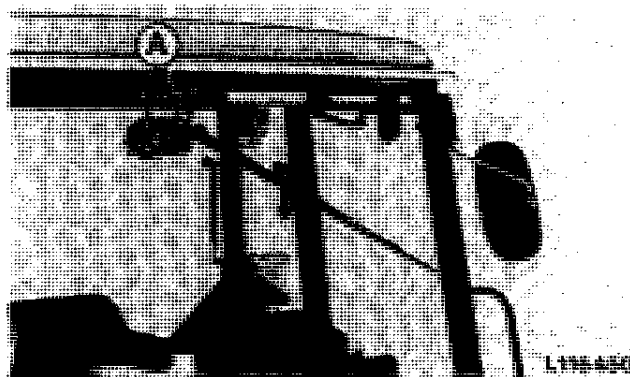
Q—Rubber sleeve (3 used)
R—Hand pump
S—Hoses
T—Hose clamps (7 used)
U—Reservoir cap
V—Reservoir
W—Reservoir bracket

L116449

L116449-LB39035AE-010287

REMOVING WINDSHIELD WIPER MOTOR

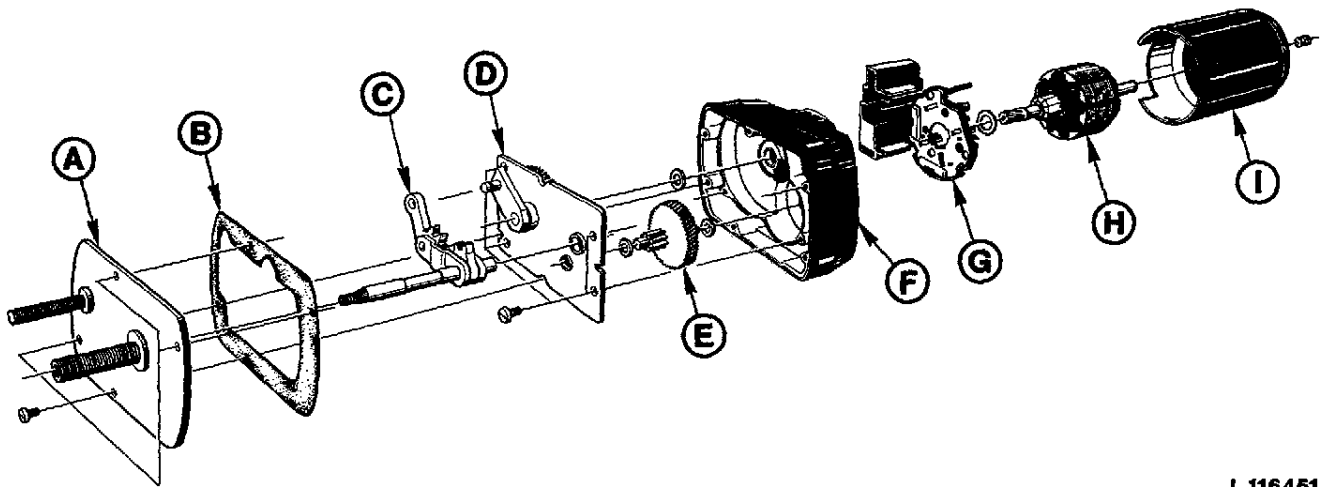
Disconnect wiring harness.
Remove the two cap screws (A).



L116449

L116449-LB39035AE-010287

WINDSHIELD WIPER MOTOR, EXPLODED VIEW



L 116451

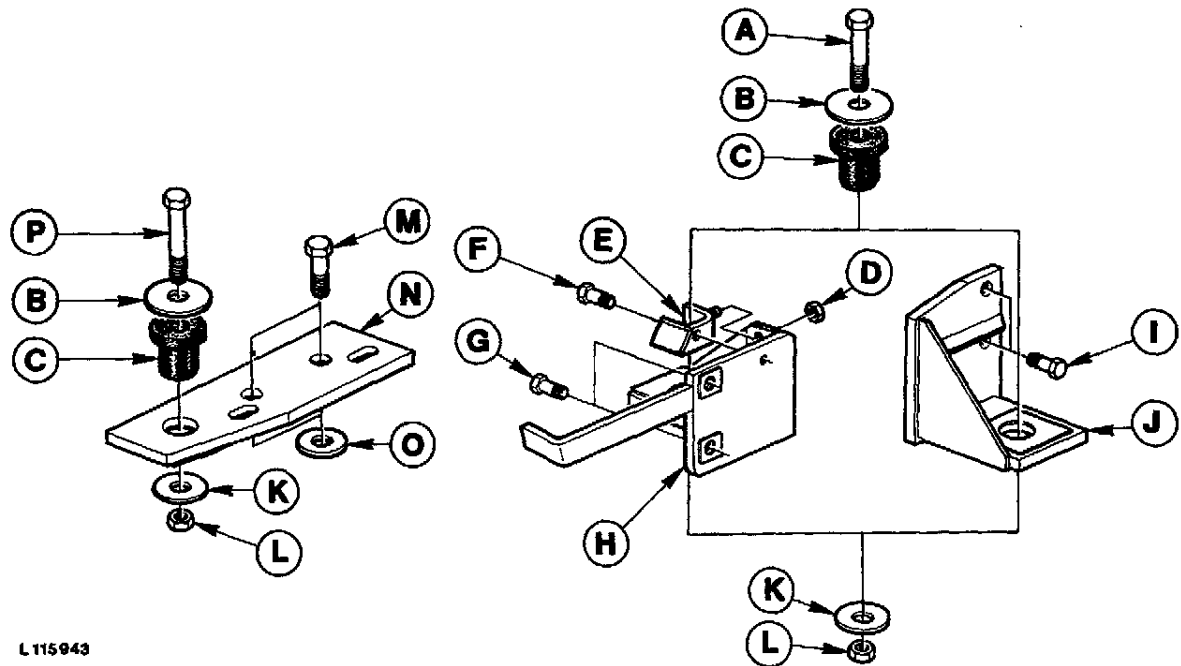
A—Cover plate
B—Gasket
C—Drive linkage

D—Motor plate
E—Drive gear
F—Gear housing

G—Armature plate
H—Armature
I—Armature housing

L116451-LB39035AE-010287

MOUNTING BRACKETS, EXPLODED VIEW



L115943

A-Cap screw (2 used)
 B-Washer (4 used)
 C-Rubber pad (4 used)
 D-Hex. nut
 E-Stop bracket

F-Cap screw
 G-Cap screw (2 used)
 H-Left-hand mounting bracket
 I-Cap screw (2 used)
 J-Right-hand mounting bracket

K-Washer (4 used)
 L-Hex. nut (4 used)
 M-Cap screw (4 used)
 N-Mounting plate (2 used)
 O-Washer (4 used)
 P-Cap screw (2 used)

L115943-LB39035AE-010287

REMOVING AND INSTALLING CAB MOUNTINGS

When installing front mountings, make sure that cab mounting holes are aligned with holes in the cab.

Tighten hex. nuts of the four attaching cap screws to 245 Nm (180 ft-lb).

MC1KAB-LB39035BE-010287

TORQUES FOR HARDWARE

2-Post roll guard supports to final drive housings, cap screws	230 Nm (170 ft-lb)
2-Post roll guard supports to crossbar, cap screws	230 Nm (170 ft-lb)

2PFOST-LB39040AE-010287

REPAIRING 2-POST ROLL GUARD



CAUTION: If the Roll Guard protective structure is loosened or removed for any reason, make certain all parts are reinstalled correctly to maintain roll-over protection. Tighten mounting bolts to correct torque.

A tractor roll-over may place a severe stress on the roll guard structure. Therefore, replace roll guard if structural members have been bent, buckled or stretched.

No welding, grinding, drilling or cutting of any type should be done on the roll guard structural members. Doing so may weaken the members sufficiently to limit their effectiveness in protecting the operator if a roll-over or upset should occur.

2PFOST-LB29030BE-010886

2-POST ROLL GUARD, EXPLODED VIEW

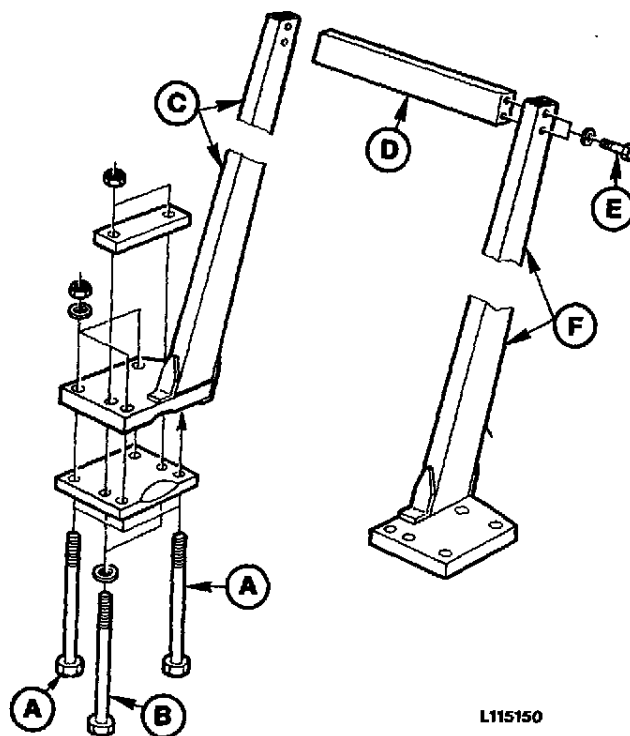
Tighten cap screws (A and B) to 230 Nm (170 ft-lb).

Tighten cap screws (E) to 230 Nm (170 ft-lb).

NOTE: Do not tighten cap screws until crossbar has been installed. Install crossbar with the name "JOHN DEERE" facing to the rear.

A—Cap screw (8 used)
B—Cap screw (4 used)
C—Support, right-hand

D—Crossbar
E—Cap screw (4 used)
F—Support, left-hand



L115150

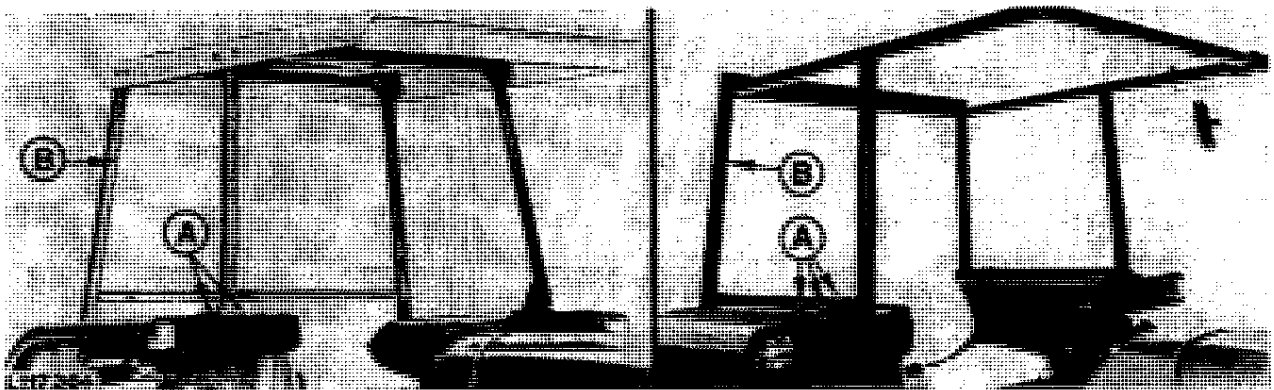
L115150-LB39040AE-010287

TORQUES FOR HARDWARE

4-post roll guard supports to fenders, cap screws	120 Nm (85 ft-lb)
Fenders to final drive housings, U-bracket hex. nuts	230 Nm (170 ft-lb)

4PPOST-LB39045AE-010267

REPAIRING 4-POST ROLL GUARD



A—Cap screws and protective caps (8 used)

B—4-post roll guard



CAUTION: If the Roll Guard protective structure is loosened or removed for any reason, make certain all parts are reinstalled correctly to maintain roll-over protection. Tighten mounting bolts to correct torque.

A tractor roll-over may place a severe stress on the roll guard structure. Therefore, replace roll guard if structural members have been bent, buckled or stretched.



No welding, grinding, drilling or cutting of any type should be done on the roll guard structural members. Doing so may weaken the members sufficiently to limit their effectiveness in protecting the operator if a roll-over or upset should occur.

NOTE: For easier installation of the 4-post roll guard, loosen hex. nuts securing fender support U-bracket to final drive housings.

Tighten cap screws (A) to 120 Nm (85 ft-lb) and install protective caps.

Tighten U-bracket hex. nuts to 230 Nm (170 ft-lb).

L117364-LB49025AE-010687



JOHN DEERE

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